THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XXII. No. 532.] LONDON, FEBRUARY 25, 1873. [25TH YEAR.] DOUBLE No. Price 1s.

RAMSAY'S NEWCASTLE CANNEL
COAL. Analysis—10,000 cubic feet of gas per ton of coal; 26-candle gas; 13¼ cwt. coke per ton of coal.
RAMSAY'S PATENT CONDENSED COKE.
DO. GARESFIELD COKE.
RAMSAY'S FIRE-CLAY ARTICLES.
GAS-RETORTS, introduced 1828. FIRE-BRICK WORKS, established 1804. FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire-Clay. The Fire-Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article. The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the Works are the most extensive in the Kingdom.
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Address G. H. RAMSAY, NEWCASTLE-ON-TYNE.

GEORGE GLOVER & CO.,
Patentees of the Standard Gasometers for the Government, and of the
IMPROVED DRY GAS-METERS.
These Meters are warranted to measure correctly and not to vary. Their acknowledged superiority has brought them into general use more rapidly than any Meters hitherto manufactured.
To meet the increasing demand, G. GLOVER AND CO. have just entered on possession of extensive premises adjoining their present Works in Ranelagh Road, and they are now prepared to execute promptly, orders to any extent. They keep in stock all sizes of Meters up to 200 lights. In cases of haste, on the receipt of a telegram early on one day, their Meters can be delivered next day in any part of England, and in the large towns in Scotland.
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236, GEORGE STREET, GLASGOW;
OR
15, MARKET STREET, MANCHESTER.

COWEN'S PATENT FIRE-CLAY RETORTS.
JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,
Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS-RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS-RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."
J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay, are promptly executed at their Works as above.
COWEN'S GARESFIELD COALS.
Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

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THE OLD TUBE-WORKS, WEDNESBURY;
AND
THE ALMA WORKS, WALSALL.
Established at the commencement of Gas Lighting.
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16, SOHO SQUARE, } LONDON
35, 36, 37, & 39, GRANBY ROW, MANCHESTER.
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J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water; Gun-Metal Cocks, Stocks, and Dies; Galvanized Tubes and High-Pressure Tubes, &c.
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WET AND DRY GAS-METER
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STREET-LAMP
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ESTABLISHED 1830.
All materials found for the alteration of Public Lamps for lighting with the Rod. Regulators with Lava Burners.

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NEAR NEWCASTLE-ON-TYNE.
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Messrs. ROMANS, being lessees of several Gas-Works, have their Cannels tested in the ordinary working process, thus securing for their customers a guarantee beyond mere laboratory experiments.
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HAVE OBTAINED THE

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FOR

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PARIS, 1867.

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AT THE

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AND 236, GEORGE STREET, GLASGOW.

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FOR GAS, STEAM, AND WATER;

Also ORDINARY WELDED WROUGHT-IRON TUBES and FITTINGS,

FOR GAS, STEAM, & WATER, EITHER BLACK, GALVANIZED, OR ENAMELLED.

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THE UNVARYING WATER-LINE GAS-METERS,

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IMPROVED WROUGHT-IRON RETORT-LIDS, CROSS-BARS, & SCREWS;

AND GAS APPARATUS OF EVERY DESCRIPTION.

SOLE MANUFACTURERS OF LIVESEY'S PATENT GASHOLDER MAN-LID,

By use of which Man-lid, inlet and outlet pipes can be examined and cleansed without loss of gas in crown of holder, or ingress of atmospheric air.

ROOFS, GIRDERS, BRIDGES, AND BOILERS OF ALL KINDS.

Drawings, Specifications, and Estimates supplied on application.

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PARIS, 1867.

CLASSES 24 and 53.

WILLIAM SUGG,

GAS ENGINEER.

LONDON, 1862.

CLASSES 13 and 31.

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IMPROVED LOWE'S JET PHOTOMETERS.

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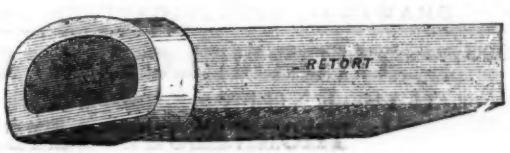
KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.



KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Bars, Flues, and Quarries, are all Manufactured of the same quality of Clay.

Every Retort and Brick is branded "King Brothers, Stourbridge."

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THE ANTI-GALVANIC PAINT.

THESE PAINTS ARE SPECIALLY PREPARED, and are most valuable for protecting and arresting rust on all ironwork. AND WILL COVER TAR EFFECTUALLY; they adhere strongly, acquire great solidity, do not crack, flake off, or blister by heat, and they resist the effects of SULPHUROUS AND GASEOUS EXHALATIONS.

They are used extensively at a large number of GAS-WORKS, on Gasholders, Purifiers, and all classes of Ironwork; also by Government, Railway Companies, &c.

Our CIRCULAR will be forwarded on application. SAMPLE CAN, for trial, sent free of charge.

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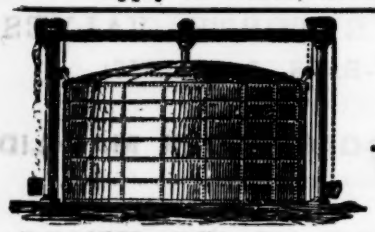
Of every size and shape, and of the best quality; also of White and Coloured GLAZED BRICKS, SANITARY PIPES, &c., &c.

The F. I. Co. have the exclusive right to make and sell Fraser's Patent "Ribbed" Gas-Retorts in Fire-Clay.

In order to meet the constantly increasing demand for their Gas-Retorts, the F. I. Co. have recently made such an addition to their premises as will enable them to execute expeditiously the largest home or foreign orders.

Apply as above, or to the London Offices, 15, NEW BROAD STREET, E.C.



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FOR CITIES, TOWNS, VILLAGES, &c.,

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SOLE MANUFACTURERS of B. W. THURSTON'S IMPROVED SCRUBBER, CONDENSER, and WASHER, in use in many of the principal Gas-Works on the Continent.

PATENTEES of the IMPROVED COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

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REFERENCES TO UPWARDS OF 300 GAS-WORKS.

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MANUFACTURER OF TELESCOPE AND SINGLE GASHOLDERS,

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FOR DITTO,

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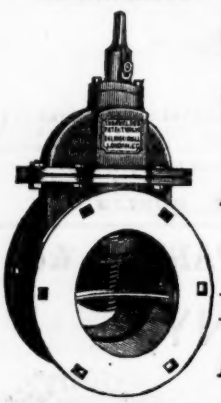

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For GAS and WATER, from 3 to 24 inches,

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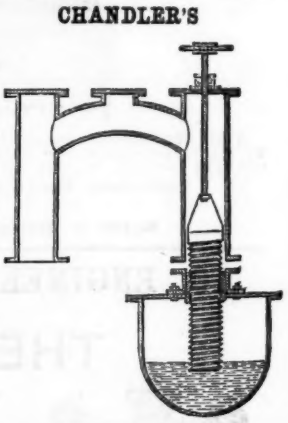

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MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

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MANUFACTURED BY

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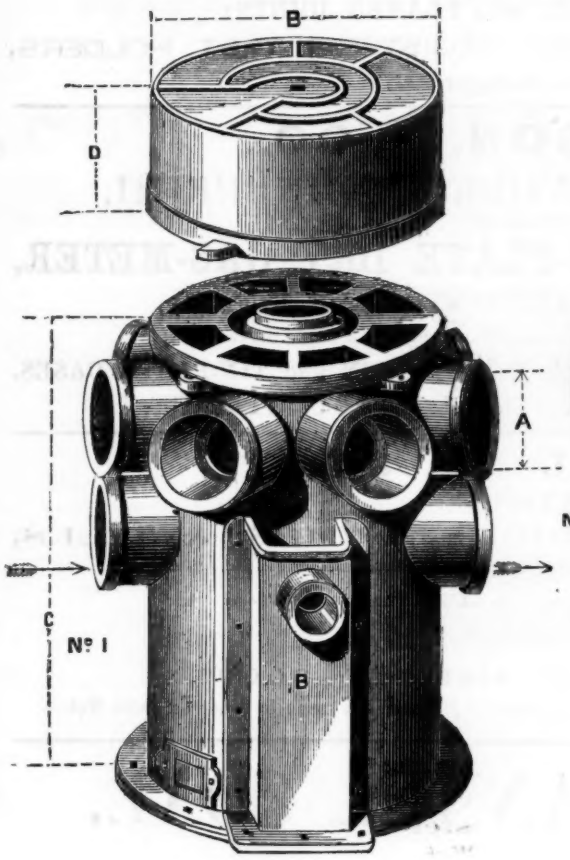
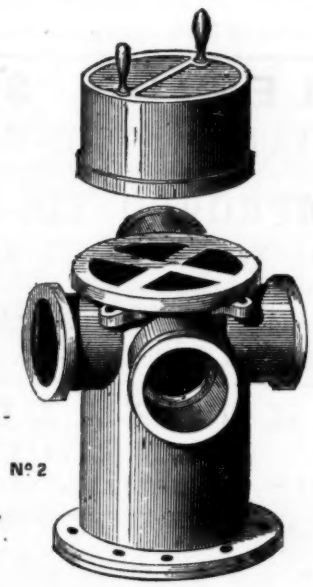
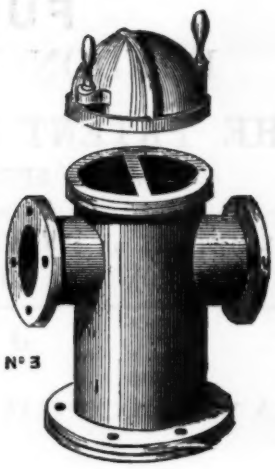
THORNCLIFFE IRON-WORKS, NEAR SHEFFIELD.







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THORNCLIFFE IMPROVED CENTRE-VALVE.

		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
A	Bore of Pipe...	4	5	6	7	8	9	10	12
B	Diam. of Body.	16	20	23	26	28	31	34	40
C	Height of Tank.	33	35	38	43	46	48	51	56
D	Depth of Cover.	8	9	10	11	12	13	14	16
	Total height...	41	44	48	54	58	61	65	72

THORNCLIFFE IMPROVED BYE-PASS VALVE.

SIZES

From 3 ins. upwards.

THORNCLIFFE IMPROVED STOP-VALVE.

SIZES

From 3 ins. upwards.

In all cases the Covers are cast heavy enough to resist any required pressure.

The advantages derived from the adoption of these Valves are so manifest and cardinal that in the immediate character of the change—the simplicity of the machine—the facility affording for cleaning out connexions between Valve and Purifier—the perfect collection and delivery by suitable overflow of the ammonia, at a greatly diminished depth from ground-line over the old form of Valve—the advantage of connecting on the same level, and at any angle, or opposite to each other, the inlet and outlet pipes without dip or rise—the clear acquisition of space in the purifying-house, by being able to place the boxes nearer together, the new Valve being entirely under the floor—and lastly, though of the greatest importance, the passage of crude and unpurified gas during the change is minimized to the merest fraction, thus preventing the fouling by impure gas the delicate machinery and easily affected exposed movements of the station-meter, thereby preventing the introduction of the enemy (unpurified gas) into the gasholder. Also a dead abutment is offered to all back pressure, imparting thereby to the gauges, governors, and hydraulic seals, a steadiness of action never realized with the once famous, but now fast becoming obsolete, Hydraulic Centre-Valve.

N., C., and Co. also Manufacture and Erect

PURIFIERS, CONDENSERS, SCRUBBERS, GASHOLDERS, ROOFS,

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IMPROVED CONSUMERS WET GAS-METERS

IN CAST-IRON CASES.

THE UNVARYING WATER-LINE GAS-METER,

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STATION-METERS OF ALL SIZES, with PLANED JOINTS;

GOVERNORS, PRESSURE AND EXHAUST REGISTERS, TEST HOLDERS,

And all kinds of Experimental Gas Apparatus.

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THE PATENT IMPROVED TIN-PLATE DRY GAS-METER,

WITH SPECIAL FACILITIES FOR ADJUSTMENT AND REPAIR,

The principal parts of the mechanism being accessible by the removal of a single Screw.

GAS-METERS on the WET and DRY principles made in CAST-IRON and TIN-PLATE CASES.

STATION-METERS, GOVERNORS, EXPERIMENTAL & TEST METERS, GAS APPARATUS, &c.

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MANUFACTURERS of FIRE-BRICKS, LUMPS, & TILES,

AND EVERY DESCRIPTION OF FIRE-CLAY GOODS.

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WORTLEY FIRE-BRICK AND RETORT WORKS,

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Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of

RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY,

beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.

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N.B.—*Export orders continue to have prompt attention.*

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SOLE MAKERS OF

MORTON'S PATENT SELF-SEALING RETORT-LIDS,

WITH

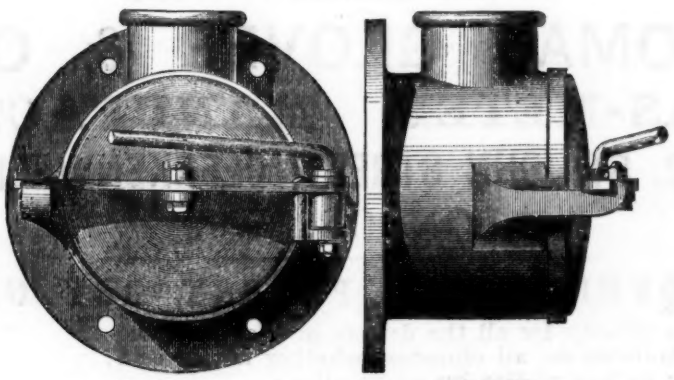
HOLMAN'S PATENT ECCENTRIC FASTENINGS.

OVER 7000 IN USE.

NO LUTING.

LIDS HINGED TO MOUTHPIECES; NO LIFTING ON OR OFF.

NO SCREWS FOR FASTENING.



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SIMPLE.

ECONOMICAL.

DURABLE

EFFECTIVE.

NO DUPLICATE LIDS REQUIRED

These Lids are proved by many eminent Gas Engineers to be the most efficient, saving much time, labour, and expense; are opened and closed as quickly and with as little trouble as an ordinary furnace door, and by their use the Retorts are soundly sealed during the whole period of carbonization.

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„ Gaslight Company, Bow Common.
„ London Gaslight Company.
„ Independent Gaslight Company.
„ Phœnix Gaslight Company.
„ South Metropolitan Gaslight Company.
„ West Ham Gas Company.

The Gas-Works, Royal Arsenal, Woolwich.
„ Alliance and Dublin Gas-Works.
„ Edinburgh Gas-Works.
„ Manchester Corporation Gas-Works.
„ Salford Corporation Gas-Works.
„ Rochdale Corporation Gas-Works.
„ Liverpool United Gas-Works.
„ Birkenhead Gas-Works.

The Nottingham Gas-Works.
„ Newcastle-on-Tyne Gas-Works.
„ Carmarthen Gas-Works.
„ Merthyr Tydfil Gas-Works.
„ Ystrad Gas-Works.
„ St. Alban's Gas-Works.
„ Over Darwen Gas-Works.
„ Aylesbury Gas-Works.

The Morton's Lid is made circular in form, that being the most convenient and suitable shape. It can be used for Retorts of any section, by adapting the Mouthpiece casting from the D, oval, or other shape, at the back, to circular in front.

The following important Testimonial, among others, has been given:—

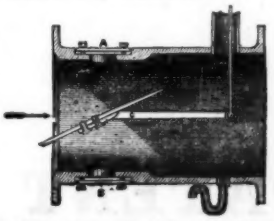
The Gaslight and Coke Company. Engineer's Office, 6, Westminster Chambers, Nov. 14, 1871.

Dear Sir,—In reply to your inquiry, I have the pleasure of stating that the whole of the Mouthpieces at Beckton have Morton's Lids attached to them, and they have given us every satisfaction. We have 2160 in use.—I remain, yours truly, (Signed) F. J. Evans.

SOLE MAKERS OF

HUNT'S PATENT EQUILIBRIUM GAS-GOVERNOR.

In this Governor a Throttle-Valve is substituted for the ordinary suspended Cone, all external communication being avoided by placing the Lever or Radius Arm (shown at C on the drawing) inside the Valve-Chamber, upon the Disc. The Disc is carried upon steel centres, upon which it is accurately balanced and turns freely. The friction in working is thereby reduced to a minimum. This Governor is extremely sensitive to alterations of inlet or outlet pressure, and renders a large actuating holder unnecessary.



London Gas-Works, Nine Elms, Dec. 25, 1871.

Gentlemen,—The 18-inch Hunt's Patent Throttle-Valve Governor supplied by you to this Company has been in use for about six months, working very satisfactorily; it obviates entirely the oscillation which sometimes occurs with the ordinary Governors, with the annoyance and danger arising therefrom. The efficiency of this Instrument, together with its compactness and lowness of price, ought to ensure its general adoption.

Messrs. Tangye Brothers and Holman. (Signed) Robert Morton, *Engineer.*

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CLELAND'S PATENT DIRECT STEAM-JET EXHAUSTERS.

THORNELOE'S PATENT GAS-VALVES.

TRAVELLERS AND HYDRAULIC LIFTS FOR PURIFIER-LIDS, &c.

London 1851. New York, 1853. Paris, 1855. London, 1862.

Dublin, 1865.

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PATENT DRY GAS-METERS,

The latter being the Highest Medal awarded for Dry Gas-Meters by the Imperial Commissioners for the Universal Exhibition, Paris, 1867.

Paris, 1867.

THOMAS GLOVER & CO.,

DRY GAS-METER MANUFACTURERS,

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6th, Prevent jumping or unexpected extinction of the Lights;
7th, May be fixed either above or below the level of the Lights;
8th, Cannot be tampered with, without visibly damaging the outer case;
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Are upheld for five years without charge.

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THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, FEBRUARY 25, 1873.

Notes upon Passing Events.

Mr. Robert Rawlinson is sensitive of criticism in a degree that we thought was confined to poets, playwrights, and Republican orators. We generally approved of the contents of his letters, but thought them long-winded—we think so still; but never dreamed of imputing that he printed his private lucubrations at public expense. Mr. Rawlinson has had the good fortune, for more than twenty years, to be employed to report on sanitary questions in an official capacity. He has contributed largely to Blue-Books. He has, therefore, not found it necessary to condense; on the contrary, he has been encouraged to enlarge; a state of things certainly not conducive to the art of saying "many things in few words." We have no hesitation in saying, in reply to an angry letter from him, that we had not the least idea of insinuating anything against Mr. Rawlinson's integrity in respect to the printing of his opinions, or anything else. Mr. Rawlinson's letter shall not prevent us from giving his suggestions for building a new house, which are decidedly in the right direction:

Before building, select a dry subsoil, and cover the entire basement with concrete.

Use a damp-proof course on the footings to all walls; use vitreous sleeper-blocks for basement floors; ventilate the space beneath the basement through charcoal, and cover the concrete beneath the boarded basement floors with charcoal also.

Place all sinks and closets against external walls, and let all drains commence from external walls; and if a drain must cross a basement, see that it is of indestructible materials, and is both water-tight and air-tight.

Ventilate all drains fully external to the house; and if there must be a cess-pool, place it as far from the house as possible. Do not let any drain act from it as a flue, but break the connexion, and do not let it have a close top on, but abundantly ventilate it.

Do not let sink-pipes or overflow-pipes go direct into drains, but empty outside over a prepared drain.

Ventilate the cloak-room, all the water-closets, and the staircases at the highest possible points in the house.

Arrange to ventilate all bed-rooms at or near the ceiling, by openings to the stairs, landings, or passages.

Arrange flues in floors, ceilings, and walls to remove the products of combustion from gas, and see that these have proper valves; but, better still, let every door-space be carried from floor to ceiling, and arrange to open or to close the spaces over the doors in sections by louvres as may be required.

Warm basements, entrance-hall, corridors, and staircases with hot-water apparatus, taking care, however, to feed the coils with fresh air; and see that there are means for ventilation as well as for warming.

See also that your warming apparatus and flues are not likely to set your house on fire, or to make some rooms unbearable by the wall heat from the flues.

Tell your architect to arrange water-cisterns, water-pipes, and roof-gutters in such manner that overflows or burstings, if such ever occur, shall not inevitably flood and destroy the best ceilings, the best carpets, and the best furniture in the house.

Arrange that a gaslight or lamp may be placed during frost so as to prevent the water-pipes being frozen. This is not impracticable, but, if a part of the original plan, may be cheap and easy.

Mr. J. Fulford Vicary, who, some time since, informed the world, through the columns of a daily paper, of the manner in which he had escaped the uncertain and almost unlimited expenses of bricks and mortar, builders, architects, surveyors, and clerks of the works, by buying a ready-made wooden house at Christiania, in Norway, and setting it up in Devonshire, now comes to the rescue of house-holders, alarmed at coals at 50s. a ton, with an economical stove:

The rooms in my house, says Mr. Vicary, on the dining-room floor are 13 feet high, and have each a Norwegian stove, which costs, in Norway, from 12 to 22 dollars, but the 12-dollar stoves we like best; these stoves burn wood or coal, and warm the room quickly. The room is ventilated by short pipes, 14 inches in length and 3 inches in diameter, placed in the floor at the corners of the rooms, with little brass contrivances to close them at pleasure. The pipes communicate with the air outside the house, and when a fire is lighted in the stove there is, of course, a strong stream of fresh air when the ventilators are open. The same pipes are inserted in the brick chimneys of the stoves a few inches from the ceiling, and the result is the effect your correspondent, Mr. Joyce, appears to think so desirable; there is no draught, the air in the room is constantly being changed, and neither myself nor any of my family have to complain of the oppressiveness so frequently alluded to as the effect of stoves. At the time I write there is as sharp a snowstorm as I have seen in Devonshire for years; the temperature of my room is 60° Fahr.

A good many years ago, before the American word "Ring" had been invented, a combination was formed amongst the principal owners of coal-pits in Durham, including at least one marquis, to increase the price to the consumer by limiting the supply. Like most other combinations of the kind, it broke down because one or two of the mine owners found it convenient and profitable to break out of the ring and sell all they could. The principle of limiting the supply, which originated with the masters, has descended to the men, and all the manufacturing industry and domestic comfort of the country are consequently under the harrows. An idea actively promulgated by the trades unionists of London, to do less work and get the same or more pay for doing it, has been taken up by the coal miners and their indirect partners—the iron-workers of Wales. Throughout all English mining districts for some time the system has prevailed of making more wages a reason for less work. In Wales—where, very much to the discredit of the majority of employers, the system of truck and the want of education have created an ignorant and degraded race, largely composed of Welsh who speak no English, and Irish whose turbulent character it is not necessary to dwell on—that such men should be (not to use the word offensively) corrupted by high wages is a matter of course. They submitted to the abominations of payments in tobacco and candles, instead of money, and now they ask for what simply means the discontinuance of all works that are not carried on at a profit. Mr. Brogden, who has just come to a compromise with the men of the Tondu Works, thus stated the case for wages in proportion to produce of coal a month since—the case for the double shift, which, left to themselves, the Welsh workers accepted, ate their words and resolution, when an eloquent orator—a professional agitator unionist—addressed them:

Will the colliers resume their work on the double-shift, instead of the present single-shift system of working? If they will do this, I, for one, representing one of the coal and iron works, should be quite willing to pay them the old rate of wages—and there are abundant reasons why the men should be willing to adopt this system; and in that case the masters should also withdraw the notice for the proposed reduction of wages.

The double-shift system means two relays of men, each working seven hours, employed in cutting coal, or fourteen hours for cutting coal; the coal being raised to the surface, and the repairs, &c., being done within the ordinary working hours by other men.

By this means the same quantity of coal can be raised with half the area of undergreund working places open, and the diminution of expenses in repairing, timber, charges for pumping, ventilation, &c., is necessarily very great. The plan has long been adopted in the north of England with the greatest success, and has the merit of extracting a larger quantity of coal, and in better condition, from the area worked, than can be done with the single-shift system. But it has advantages still greater in the prevention of accidents and in increased security for the men. There would be only half the number of men down the pit at one time, and, if accidents through explosions should occur, the risks are applied to only one-half the number. The area to be inspected and kept in repair would only be one-half, and the inspection and repair could be much more efficiently done. The Mines Regulation Bill has endeavoured to secure proper inspection and repair, but the actual reduction of the risk to one-half by the adoption of this plan is better than half a dozen Acts of Parliament.

It is especially applicable to the South Wales coal-fields, where there is sometimes a large discharge of previously pent-up gas released by some of the workings or by the condition of the atmosphere. The system has been advocated by our most experienced mining proprietors and engineers, and the men who were sent from Wales to the north of England some time ago by one of the largest colliery proprietors returned and advised their fellow-workmen to adopt it.

Against these valid and important reasons we have only to oppose old prejudices.

What will be the end of this struggle for power—for it is no longer a struggle for wages—no man can foresee. At the moment all the conditions that gave us superiority over other nations in commerce and manufactures are suspended. We have no longer cheap coal or cheap iron; we have no longer workmen who, paid more highly than continental *proletaires*, do double the work, and more. Who can calculate the injury that has been done alike to employer and employed by amiable, well-meaning agitators of the "Tom Brown" Hughes class, imbued unconsciously with socialistic notions, who have cockered up workmen with the idea that the reward of labour did not depend on the law of supply and demand, but on some fantastic right to share in profits. There is no doubt that it is possible in some transactions to regulate prices by wages. For instance, if a builder knows what he has to pay for brickwork and carpenters work, he can make his calculations tolerably exactly when sending in a tender for a mansion, a gaol, or a hospital; but what is to be done in those numerous instances where years of loss of capital sunk without return precede profits, and where, after years of profits, years of losses succeed? There are works in Wales, for instance, where the proprietors have realized millions; but there are also works where millions have been sunk, without the return of a living profit. Do our fanatics for the co-operative principle mean that employment, as far as the employed are concerned, shall be a game of "heads we win, tails you lose?" Would the servants, for instance, of the Great Eastern Railway, which pays no dividend this year, consent to take less wages than those of the Great Northern, that pays a good dividend? Certainly not. It is the advantage of those who work on wages or salaries that they are paid whether profits are earned or not. The demand of the working men of Wales for an arbitrator to investigate the profits of the employers, and on those profits to regulate the weekly, monthly, or quarterly advance of wages, if conceded, even as a temporary expedient, would put a stop to all enterprise. Who would open works to pay a certain minimum of wages as long as there were losses or no profits, with the certainty that these profits must be shared with the men insured against loss as soon as they assumed importance? There are wild men out of lecture rooms and professors chairs who talk of applying co-operative principles to agriculture, when a score of labourers who live from hand to mouth are expected to depend on the annual results of a farm. Even in a market-garden, where pretty nearly all the labour is manual, where spades are mostly used to cultivate the soil, and hands employed to weed, hoe, and gather the crops, there are bad years and heavy losses; but on light land farms, the easiest to cultivate, it is not uncommon for three years to succeed each other and leave the farmer not only without profits, but with £5 or £6 per acre for ever lost in artificial manures and purchased food that has not fertilized the burnt-up soil. Every wise employer will make his workmen and labourers feel that they have an interest in his success, but to make partners of penniless men, to give them a right to investigate accounts and call for a correct balance-sheet, is an idea which could only occur to a man uneducated or too highly educated.

The case between the inhabitants of Thames Ditton and the Chelsea Water-Works Company illustrates, in a remarkable manner, the soundness of the "Notes" we made the other day on the incapability of the legal mind to comprehend public opinion. In order to afford a more ample supply of pure water, the Chelsea Company have undertaken to provide new reservoirs at a vast expense, from which their shareholders will derive no additional revenue. The plans lodged appear to interfere seriously with the beauty of the river and the amenities of the neighbouring residents. But, according to information since furnished by the solicitors to the company, after public indignation had been raised to a high pitch, the actual plans adopted by the directors have not the objectionable features to which the residents and the frequenters of that part of the Thames so loudly object. Now, this is the sort of "highly respectable solicitors" management which may be simply termed suicidal—the discreet "silence that gives "consent" to every imputation likely to create unpopularity. It is quite in Mr. Ayrton's style, without Mr. Ayrton's advantages for taking his own part. Why, when the first whisperings of discontent arose, could not some rational means have been taken to allay them? Of all persons a solicitor is the worst to interfere in a public question. It was Sir William Armstrong, who had been a solicitor, and his legal advisers, who envenomed the Newcastle strike, which has since run over the length and breadth of the kingdom. Wise advisers, instead of treating the fears and doubts of the Thames Dittonites with contempt, would have gone, not to a lawyer's office, but to an artist's, and, without waiting to be attacked, have shown in some illustrated paper or periodical what would be the final appearance of the river when the reservoirs destined to effect a constant supply of pure water were completed, turfed, and planted. A few soft words, and a little money spent on art instead of law, would have removed an opposition that must be costly, and may prove fatal to the Water-Works Improvement Bill.

Lord Buckhurst having left the Church, for which he was educated, seems, since his accession to the House of Lords, to be anxious to utilize his spare time by protecting somebody from harm. Last year he introduced and dropped a most ridiculous Bill for preventing English boys from becoming acrobats and rope-dancers—a Bill described by one of that profession as a measure for the protection and encouragement of foreign talent. This year he has been more useful, not from what he said, but from what he caused other peers, with more common sense, to say. Lord Buckhurst wished all railways to be compelled to adopt certain mechanical contrivances for the prevention of accidents, and certain rules that he had gathered from the reports of the military inspectors of the Board of Trade. Two contradictory sentences are fair samples of the noble lord's qualifications for logical argument. "Railway directors," he said, "must look to "the interests of their shareholders, and they seldom entertained "the question of the safety of the public;" and a little later he added that "in 1870 the compensation for accidents amounted to nearly "half a million of money, and that it must be remembered that the "amounts so paid were exclusive of the loss the companies sustained "from damage to their own property;" so that his lordship would have us to understand that, independently of feelings of humanity, railway directors rather enjoyed paying half a million of money for neglecting the interests of the public. The Earl of Aberdeen, who took the same side of the question, is very young, and just at the time of life when we are apt to imagine that everything can be settled by an Act of Parliament. The Duke of Richmond began in the spirit of the Conservative landowner who hates or hated railways, but, before he finished, remembered that in the course of his very unsuccessful political life he had been a Minister, and might be again. He spoke with a sneer of "that wonderful body of men—"the railway directors of this country," forgetting apparently that any ill-natured peer or M.P. might have described his grace as "one of those wonderful dukes who lets out his park for a race-"course, and admits the ruffians of the betting-ring at a guinea a "head." But a little further on the duke recollected his better self. Every one who has had to do with him will admit that, although not a Disraeli, a Cairns, or a Salisbury in talent, he is a very courteous gentleman, and that "when he was at the Board of Trade he "had always found railway directors desirous of considering any "plans which might be put before them for the promotion of public "safety." Lord Houghton, who, in the very best sense of the term, is essentially a man of the world, for he sympathizes with all ranks and conditions of men, and knows them, approached the subject in a much more practical spirit:

He had several objections to the bill, both in principle and detail. He objected to it in principle, because it endeavoured to lay down hard and fixed rules which would make the block system obligatory on lines where there were only two or three trains a day, and where it would be of no use. No doubt if the block system were generally adopted it would diminish the number of accidents, and the amount of money paid by way of compensation for accidents. But did the noble lord (Lord Buckhurst) suppose that the railway directors would not have adopted it if on full consideration they had not found there were not serious and substantial objections to it, if, as they believed, the English people wanted frequency and celerity of trains? If the English people chose to have all the trains, including the expresses, slow, and to have comparatively few trains, no doubt they might have an almost complete immunity from railway accidents. But he believed that was not what the English people wanted. He believed they were well satisfied to run a small risk of accident for the great convenience of frequency and celerity. Taking the enormous amount of traffic, the extent of mileage, and the vast number of passengers carried, he believed the comparative success in avoiding accidents was beyond what the most sanguine railway authority could have hoped for. He had heard of a calculation which showed that their lordships were positively safer when travelling by railway than when sitting in that House. Taking a given number of people pursuing the ordinary avocations of life, the per centage of accidents to them would be greater than that of accidents to the same number of persons travelling by railway. In reference to what had been said by his noble friend on the cross benches (the Earl of Aberdeen), he would observe that you must give a certain amount of freedom to railway servants in order to raise them from the level of machines and make them intelligent in the discharge of their duty.

The Earl of Carnarvon added to these plain arguments the following weighty statements and figures:

In the last return of the Board of Trade he found that the number of passengers carried during the year was in round numbers 375,000,000, and that of those the killed amounted to only 404, or 1 in 6,500,000. For years and years past there had been an annual diminution in the number of passengers killed in proportion to the number carried. Without going through each successive year, he would merely state that from 1847 to 1849 the number of passengers killed was 1 in something less than 5,000,000, as compared with the number he had before stated as the return for last year. So that although speed had undoubtedly increased, although the number of passengers had enormously increased, although railway traffic of all kinds had increased in what he must call a dangerous proportion, still the number of deaths from railway accidents had greatly diminished.

Every one dislikes rates and taxes. A man must remove to a country without roads, without gas, or anything better than a home-manufactured candle, and have to fetch his water from a river, in a bucket, or buy it, as every one did out of London half a century ago, at a halfpenny per bucket, to know the advantages of rates. So, too, he must settle in a country without law, like the South American sheep farms, to learn the use of a settled government and—taxes. At the present moment there are dreamers who maintain, in spite of

the example of Lancashire, that the simple process of abandoning our present sources of water supply, and spending ten millions or so on a system beginning in Cumberland or Wales and ending in London, would effect an extraordinary economy in local charges, whilst others fancy that, in spite of the cost of coals, by some chemical hocus-pocus municipal works would reduce the price of gas to 1s. 6d. per 1000. As to Government taxation, different shades of politicans have conflicting views and claims. For instance, what may be called the Manchester school are in favour of a free breakfast table—that is, no Customs dues on tea, coffee, cocoa, or sugar. The farmers, at least the farmers who grow barley, have quite an opposite theory, and demand the abolition of the malt-tax in very peremptory tones—only seven millions of money—not counting the duty on spirits, which must follow the repeal of the tax on beer. The merchants and manufacturers come last, and petition for the repeal of the income-tax on which the Manchester followers of Mr. Bright and the malt-tax repealers count for filling up the gap which would be created by untaxing alike the beer-house and coffee-house. Under these circumstances we are thankful to have a Plain Dealer in ths Chancellor of the Exchequer, who plainly intimated to a deputation pressing for the repeal of the income-tax, that the only way of doing it was to abolish the army and navy. The deputation, appointed under the direction of the Associated Chambers of Commerce, was headed by Mr. Samuel Morley, M.P., and included Mr. Edgar Bowring, M.P.; Mr. Whitwell, M.P.; Mr. Norwood, M.P.; Mr. C. B. Eastwick, M.P.; Mr. W. Johnston, M.P., &c.

Mr. Samuel Morley, M.P., in introducing the deputation, said they represented a large and important association of commercial men. They came to lay before Mr. Lowe what they believed to be a firm and growing conviction against the continuance of the income-tax. They begged to express a hope that some means might be adopted of gradually but surely extinguishing the tax.

Mr. Lowe's reply was well calculated to puzzle a body of commercial men, and it seems that they very wisely, not having anything to say in reply, cheered this latest edition of "The Plain Dealer." Mr. Lowe told them that if the tax were repealed, seven millions would have to be raised in some other way. The expenditure of the country might be said, roughly, to amount to seventy-one millions. Out of this, the interest of the National Debt and fixed charges consumed twenty-nine millions. Seven millions were required to keep up the seaborne postal service. Five millions were required for the pensions and superannuation allowances. So that there really remained only thirty millions, out of which the seven millions were to be retrenched. This thirty millions included the army, the navy, the civil service, the judicial establishments, all the money expended on education, and the share of the Government in the expenses of gaols, lunatic asylums, police, and other charges, transferred from local to imperial taxation. Mr. Lowe concluded by saying:

What they asked him to do was to take away nearly a quarter of that sum and yet leave the public service in the same state of efficiency. If they followed him he thought they would see the absolute impossibility of his complying with their wishes. They would see it would be very wrong for him to hold out any hopes to them, even supposing he agreed with all that had been said, as he felt himself absolutely powerless in the matter. He had addressed them at greater length than was his custom, but he trusted they would take that as he meant it, in the light of a compliment.

There is, however, one member of Parliament who is prepared to abolish any number of taxes, and replace them by a very simple and summary expedient—an expedient characterized by a very advanced Radical, Mr. Leatham, as only possible in the mind of a pickpocket or a philosopher. We are quite certain that Mr. Rylands, the member for Warrington, is not a pickpocket, and, judging by the grave tone and tenor of his corollaries, neither grammarian nor philosopher. His notions of English history are rather hazy. He has come to the conclusion that, at some period of English history, the Norman Conquest, the invasion of Julius Cæsar, or the Restoration of Charles II., the land was confiscated by the predecessors of the present holders, and therefore he proposes to repeal ten or fifteen millions of taxes, and replace them as a property-tax on the holders of land. Mr. Rylands does not mention houses. According to this scheme, the owners of a Lancashire mill, a Birmingham factory, a Regent Street shop, will pay nothing, but the owner of five hundred acres of land will pay 25 per cent. upon its value. Certainly, as a financial reformer, Mr. Rylands deserves the wooden spoon.

THE GAS AND WATER BILLS FOR 1873.

(*Continued from page* 92.)

THE *Atherton Gas Company, Limited*, promote a Bill for incorporation with the usual statutory powers. The district is limited to the township of Atherton, in the parish of Leigh, Lancashire. The capital of the limited company was £4500, in £5 shares. It is proposed by this Bill to raise £10,500 additional, in £10 shares, the dividend on which is limited to 7 per cent. or 6 per cent., according as they are ordinary or preference. The limited company have a mortgage debt of £3400, and power is asked to borrow £100 more in respect of the original capital. In respect of the additional capital, power is sought to borrow £3000 under the usual restrictions. The price of gas is not to exceed 6s. per 1000 feet; the illuminating power is to be 12 candles, and the gas is to be supplied at a pressure of 8-10ths or 6-10ths within the usual hours. The burner prescribed is a 15-hole Argand, with 7-inch chimney.

The *Lea Bridge District Gas Bill* is to incorporate and confer statutory powers on the Lea Bridge District Gaslight and Coke Company, Limited. The limits are the parish of Walthamstow and parts of the parish of Leyton, and the Bill is intended to confirm an agreement entered into with the West Ham Gas Company for the purpose of terminating opposition in a portion of the district. The present share capital of the limited company is £50,000, of which £25,070 have been subscribed and fully paid up. Power is asked in this Bill to raise additional capital to the extent of £25,000, in £10 shares, the dividends on which are limited to 7 per cent., or 6 per cent., according as the shares are ordinary or preference. Borrowing power to the usual extent is asked in respect of both original and additional capital. The price of gas is limited to 6s. per 1000 feet, but it is provided that, if the company can prove to the Board of Trade that, from any unavoidable cause, they are unable to manufacture gas so as to earn the prescribed dividend, the Board may, after hearing the company, and any local authority, empower the company to charge an increased price temporarily for such period as may be specified in the order, and such order may in like manner be from time to time extended, varied, altered, or rescinded. Gas is to be supplied at a pressure of 8-10ths and 6-10ths within the usual hours. The illuminating power is to be 14 candles. The prescribed burner, the Bill says, shall be of the same kind as shall be from time to time used by the inspectors appointed with respect to the metropolis, under the Metropolis Gas Act, 1860. This clause will no doubt be altered in committee. Power is asked to form a renewal-fund for the purpose of obtaining a renewal of the lease of lands on which the works are situate, for the purchase of the freehold, or to defray the expense of removing the works.

The Bill of the *Pontypool Gas and Water Company* is to dissolve and reincorporate the company with the same title. The share capital of the original company is £26,400, in 2200 shares of £12 each; 1100 of such shares, considered fully paid, have been allotted to the shareholders of the Trevethin Water-Works Company for the purchase of their undertaking. The Bill proposes to convert these into stock. On the remaining 1100 shares of £12, £11,086 has been paid, and the original company have borrowed £4500 on debentures. Power is now sought to raise additional capital to the extent of £13,600, by the issue of £10 shares, ordinary or preference, the dividends on which are limited to 7 per cent. or 6 per cent. Borrowing powers to the usual extent are sought in respect of both original and additional capital. The price of gas is not to exceed 6s. per 1000 feet; the illuminating power is to be 14 candles, tested by an Argand 15-hole burner with 7-inch chimney, or some other suitable burner capable of consuming 5 feet per hour; and the gas is to be supplied at a pressure of 8-10ths and 6-10ths within the usual hours. Section 42 proposes that service-pipes communicating with mains and pipes of the company shall be laid, placed, and removed under the superintendence of the company, but at the expense of the persons requiring or having a supply.

The following are the Bills promoted by companies already incorporated to obtain further powers:—

The Bill of *The Gaslight and Coke Company*, as deposited, proposed to give the company power to purchase or take on lease and work coal mines and collieries, and also to purchase such collier ships, lighters, and vessels, as may be deemed necessary for economically carrying on their undertaking. It will be seen from the report of the meeting of the company we published in our last number, that the directors have withdrawn the part relating to collieries, and now only seek authorization to purchase and use collier ships, &c. Power is also sought to form a reserve-fund, not to exceed 1-20th part of the paid-up capital of the company. The sum which may be set apart in any year for the purpose, out of clear profits, is not to exceed 1 per cent. on the paid-up capital. The object of the fund is to make up deficiencies in dividend.

The Bill of the *Imperial Company* is simply to confer general powers for amalgamation with any or all of the other metropolitan gas companies, on such terms as may be agreed upon and approved by the Board of Trade. The amalgamation clauses of the City of London Gas Act, 1868, are to apply to all amalgamations under this Act, the limit as to time contained in the 18th section being omitted, and the word "Corporation" being held to mean the Metropolitan Board of Works.

The Bill of the *Crystal Palace District Gas Company* is to enable them to raise additional capital to the extent of £150,000, with dividends limited to 6 per cent. or 7 per cent., according as the shares issued are preference or ordinary. The usual borrowing powers and the privilege of issuing debenture stock are asked. Section 16 proposes that the company may, either by themselves or in combination with other companies, bodies, or persons, purchase, hire, hold, and work railway trucks, colliers, steamships, &c., and may purchase and take on lease coal mines and collieries, with a view to economy in the production or improvement in the quality of gas. Another section is to give power to lease or exchange lands not wanted for the purposes of the company.

The *Belfast Gaslight and Coke Company* seek power to raise £100,000 additional capital, in shares of £10 each, ordinary or preference, or both. The dividends payable are limited to 7 per cent. or 6 per cent., according as they are one or the other. Power is asked to borrow to the extent of one-fourth of this additional capital, and to issue debenture stock. Two clauses supply obvious deficiencies in the previous Acts of the company. One requires a consumer to give notice before disconnecting a meter, and the other empowers the company to manufacture and deal in fittings.

The *Brighton and Hove General Gas Company's Bill* is promoted to enable the company to raise the price of gas. It repeals the clause in the company's Act of 1866, limiting the price, and substitutes other charges. A clause is also proposed to give the Board of Trade power, on the application of the company or any local authority, to make from time to time Provisional Orders, increasing, reducing, or regulating the price of gas chargeable to consumers.

The *Bristol United Gaslight Company* promote a Bill to enable them to purchase additional land, and to sell other land. They also seek power to raise their capital to the amount of £400,000 (the

present capital appears to be £261,250) by the issue of new £10 shares, which are to be offered by auction in the city of Bristol. Premiums on these shares are to be applied to the general purposes of the company, but are not entitled to dividend. (It may be worth mentioning, that on previous issues of new capital the company received by way of premium £65,489.) The usual borrowing power is sought in respect of the additional capital; and it is also proposed to issue debenture stock.

The *Dewsbury and Batley Gas Bill* is to give the company power to raise £200,000 additional capital, with borrowing power to the usual extent. The dividend payable on the new capital is limited to 6 per cent. and 7 per cent., according as the shares are preference or ordinary. The Bill will amend the company's existing Act, and for the future 14-candle gas is to be supplied, tested by the new London burner. The pressure at the consumers meter is to be 6-10ths and 8-10ths within the usual periods.

The *Gosport Gas Bill* is simply to enable the company to raise the price of gas. The price proposed is 5s. when the cost of coal at the works does not exceed 16s. per ton. When above that sum, one-eighth part of the excess may be added to the charge for gas. The directors are to make yearly contracts for coals if possible.

The *Leicester Gas Bill* is to empower the company to raise additional capital to the amount of £100,000, the dividends payable being limited to 7½ per cent. if issued as ordinary, or 6 per cent. if raised as preference capital. The usual borrowing powers and the right to create debenture stock are sought. The Bill amends the previous Act of the company by requiring notice from consumers before disconnecting meters, and by giving the company power to manufacture and deal in fittings, &c., and to use patent inventions.

The *Lincoln Gas Bill* is promoted to extend the limits of the Lincoln Gas Company, to rearrange the share capital, and to authorize the raising of additional capital for new works. The original capital of the company was £8000, in 320 shares of £25 each. Large extensions have, however, been made from time to time out of profits, and the undertaking is now valued at £80,000. It is accordingly sought to extinguish the original shares, and in lieu of each £25 share to issue to the holder five of £50 each. Thus the ordinary share capital of the company, if this Bill should pass, will be £80,000, in 1600 shares of £50 each. Power is asked by the Bill to raise additional capital to the extent of £20,000, by the issue of 400 new ordinary shares of £50. These are to be offered to existing shareholders, and if not taken up are to be sold by auction, or otherwise, in the city of Lincoln, in lots of not more than five shares each, the reserved price not to exceed the nominal value of the share. Premiums realized are to be applied as part of the capital of the company, but not entitled to dividend. Borrowing power to the extent of £20,000 is asked, but no part of that sum is to be raised until the whole of the new capital has been taken up. The dividend on the new capital is limited to 7 per cent. Gas is to be delivered from the works at a pressure of 1 inch and three-quarters of an inch within the usual hours. It is to have the illuminating power of 14 candles, tested by the new London Argand. The maximum price is not to exceed 4s. 6d. within the borough of Lincoln, and 6s. beyond, while the price of coal does not exceed 16s.; but in case in any period of three months the average cost of coal shall exceed 16s., then the company shall be entitled to add one-eighth part of such excess to the maximum price.

The *Neath New Gas Bill* is to empower the Neath New Gas Company to raise additional capital and alter the maximum price. The amount of capital proposed is £20,000, to be raised by the issue of £10 shares or stock, ordinary or preference. The dividend payable on this new capital is to be regulated by the price charged for gas, varying from 7½ per cent. when the price of gas does not exceed 4s. 6d., to 10 per cent. when the charge is not higher than 3s. 9d. The shares are to be offered by auction in the borough of Neath. Premiums realized are to be applied in payment of the costs of this Bill, in improving works or paying off borrowed money. Shares not sold by auction are to be offered to existing shareholders at par. Power is asked to borrow £5000 in respect of the new capital under the usual restrictions. It is also proposed to issue debenture stock, to create a contingency or renewal fund, and also a reserve-fund limited to £3600. For the future the maximum price of gas is to be 5s. 6d. within the borough of Neath, and 6s. beyond. Discounts may be allowed by special agreements. Gas is to be supplied at a pressure of 8-10ths, 6-10ths, and 4-10ths, within the customary hours, at the outlet of the governor supplying the street mains. The illuminating power is to be 14 candles, the prescribed burner being simply an Argand consuming 5 feet per hour. A permanent gas examiner, appointed by any local authority, is not to be an officer of such authority other than for the specific purpose of testing the gas.

The *Newcastle-upon-Tyne and Gateshead Gas Bill* is promoted to enable the Newcastle-upon-Tyne and Gateshead Gas Company to convert their capital into consolidated stock. The original capital is £160,000 A stock, entitled to 10 per cent.; £40,000 B stock, entitled to 3½ per cent., and £100,000 C stock, entitled to 7 per cent.—in all £300,000. The Bill proposes to equalize the dividend, limiting it to 7 per cent. on the consolidated stock, and to make the nominal capital of the company £350,000, to be allotted as follows:—£230,000 among holders of A stock; £20,000 to holders of B, and £100,000 among holders of C stock. The additional capital proposed is £100,000, which is also to be entitled to 7 per cent. Borrowing power to the usual extent is asked for in respect of this new capital. The present maximum charges for gas are to remain only so long as the average cost of coal at the works during one year does not exceed 7s. per ton. In the event of an increase of cost, the company may for the next ensuing year, and for each shilling excess, add to the present maximum charges three halfpence for every 1000 feet, and one halfpenny per lamp per week. Power is to be given to the Corporation to appoint an accountant to examine the books of the company to see that an increase is justified. The Bill is further to confer some ordinary powers on the company not provided for in previous Acts.

The *Nottingham Gas Bill* is to enable the Nottingham Gas Company to raise £400,000 additional capital, which is to be entitled to 7 per cent. dividend. If, however, the profits of the company be not sufficient to pay this 7 per cent., together with the maximum rates fixed on other capital by previous Acts, then the dividend will be equal on old and new capital up to the maximum rates on the old, and the surplus, if any, will be appropriated towards increasing the dividend on the new capital. Borrowing power to the usual extent is asked in respect of the additional capital. Compulsory powers for the purchase of certain lands for the erection of new works are prayed, and provisions are made for the correction of any errors in the description of lands.

The *Scarborough Gas Bill* is to extend the limits of supply to the Scarborough Gas Company, and to enable them to raise additional capital. The new limits are to include all places and parts of places within four miles of the boundary of the borough of Scarborough. The present capital of the company is £71,240, and this Bill asks power to raise £60,000 additional, in shares of not less than £10 each, which a general meeting may direct to be sold by auction or otherwise, as may be thought fit. Premiums realized are to be applied in payment of the expenses of this Bill, in improving works, or paying off borrowed money. The dividend on the new capital is limited to 8 per cent. if issued as ordinary, or 6 per cent. if preference shares. Borrowing power to the usual extent is sought. The price of gas beyond the present limits of supply is to be such sums as may be agreed upon. Power is asked to purchase additional lands for the erection of works, and to dispose of some superfluous lands. Some other provisions will confer the usual privileges accorded to gas companies. After six months from the passing of the Act, gas of 14-candle power, tested by the new London burner, is to be supplied at a minimum pressure of 6-10ths and 8-10ths within the usual hours, measured as near as may be to the consumer's service pipe.

The *Sutton Southcoates and Drypool Gas Bill* is to give the company power to purchase or take on lease additional lands for the erection of manufacturing and storeage premises. No power to raise additional capital is asked. The remarkable feature in the Bill is section 9, which runs: "The provisions of the Gas-Works Clauses "Act, 1871, shall not apply to the undertaking of the company."

The *Uxbridge and Hillingdon Gas Bill* is to enable the company, incorporated in 1861, to raise £30,000 additional capital, and to borrow to the extent of one-fourth of that sum under the usual restrictions. The dividend on the new capital is limited to 7 per cent. or 6 per cent., according as the shares are ordinary or preference. The Bill proposes to repeal sections 60 and 61 of the existing Act, and with reference to the Gas-Works Clauses Act, 1871, the prescribed number of candles is now 14; the burner, some suitable burner consuming 5 feet per hour; and the pressure, 8-10th and 6-10ths within the usual hours. The Bill is further to give power for the purchase of land on which to erect works, and to confer some ordinary powers.

There are three Bills to confer further power on local authorities in respect of their gas undertakings.

The *Buxton Local Board Bill* is, among other things, to empower the Board to purchase land on which to erect new gas-works, for which purpose they ask power to borrow £15,000.

The *Stockton-on-Tees Gas Bill* is to authorize the Stockton Municipal Corporation to borrow £100,000 for the purpose of extending and increasing their supply of gas.

The *Barrow-in-Furness Corporation Bill*, so far as it relates to gas, is to enable the Corporation to extend £55,500 in the purchase of land and erection of additional works, and in making a short line to connect the works with the Furness Railway. It is also to extend the gas limits so as to include the townships and parishes of Ulverston and Pennington.

The Bills to authorize the purchase of gas undertakings by local authorities are as follows:—

The *Atherton Local Board* promote a Bill, first, to enable them to erect gas-works; next to purchase by agreement or take a lease of the undertaking of the Atherton Gas Company, Limited; and, lastly, to prevent the Leigh District Gas Company from supplying gas within the district of the Board, the Board purchasing the mains, &c., lying within the limits. It is proposed to supply gas of 14-candle power; the price not to exceed 6s. per 1000 feet. Power is asked to borrow £20,000, to repay which a sinking-fund is to be formed.

The *Briton Ferry Local Board Bill* is to enable the Board to acquire the undertaking of the Briton Ferry Gas and Coke Company for such price or consideration, whether by a sum in gross or by way of annuities of shareholders, as may be agreed upon or settled by arbitration. The mortgage debt of the company is to remain a charge on the works. The usual provisions are made for the security of annuitants. Any surplus profits after providing for current expenses, the payment of annuities, a sinking-fund, and a gas contingency or depreciation fund, may be devoted to general public improvements.

The *Dewsbury and Batley Corporation Gas Bill* is intended to enable the two Corporations to purchase the undertaking of the Dewsbury and Batley Gas Company, or to erect competing works. They offer 12-candle gas for 4s. per 1000 feet. The terms and conditions of purchase are to be such as may be agreed upon, or settled by arbitration. The purchase, if settled, being effected jointly by the two Corporations, the arrangements are necessarily somewhat complicated, and need not be referred to unless the Bill should pass.

The *Dublin Corporation Gas Bill* is to enable the Corporation to purchase the undertaking of the Alliance and Dublin Consumers Gas Company on terms we have already announced. The transfer is to

take place on July next. The consideration, as we have said, is the payment of interest at the rate of 6 per cent. per annum on the capital, which the directors are continued in office to divide among the shareholders. The Corporation bind themselves to redeem 500 shares a year, at the rate of £13 10s. per share. If they redeemed no more than this number, it would take 118 years to wind up the company; but it is further agreed that the Corporation may, at their option, redeem 3000 shares a year at the same rate, and even more; but in this event, the shares in excess of the 3000 will be paid for at the rate of £14 10s. each. The shares to be paid off are to be drawn by lot half yearly. As a security for the shareholders, a gas guarantee rate is to be levied, in case the profits of the undertaking are insufficient to pay the interest. The Corporation assume the mortgage debt of the company, £140,500, which they ask power to reborrow if paid off, and seek authority to borrow a further sum of £800,000, and also to take £10,000 on cash credit. All the usual powers accorded to Corporations in connexion with a gas supply are applied. The provisions with respect to the quality of the gas, and the maximum prices in the city and outlying districts are the same as contained in the company's Act of 1871; but a gradual reduction is provided for within the city and the limits supplied from the city works. At the same time, provision is made for a revision of prices in certain events.

The *Dumbarton Burgh Bill* is, among other things, to empower the Corporation to acquire the undertaking of the Dumbarton Gaslight Company by agreement, or to erect competing works. If the purchase be made by way of annuities, these may be redeemed at a price not exceeding 25 years purchase. The Corporation propose to supply 20-candle gas at 5s. per 1000 feet, and ask for all the usual powers of a gas company.

The *Okehampton Corporation Bill* is to amend the constitution of, and give general powers to, the Corporation of the borough of Okehampton. It provides that the Corporation may purchase, and that the Okehampton Gas Company, with the consent of 3-5ths of the shareholders present at a special meeting, may sell the gas undertaking on such terms as may be agreed upon. All the usual powers accorded to a gas undertaking are asked by the Bill. The price of gas named in the Bill is 6s. 8d. per 1000 feet, the quality is at present an open question. Power is asked to borrow only £3000 in connexion with the supply of gas.

The *Over Darwen Local Board of Health* promote a Bill, among other things, to authorize the Board to purchase of the Over Darwen Gaslight Company on terms already agreed upon. These are a perpetual annuity of £1 2s. 6d. in respect of every share of £15 into which the company's share capital of £36,000 is divided, and a perpetual annuity of 7½ per cent. on the stock capital of £3200. The mortgage debt of the company is assured by the Corporation and remains a first charge on the undertaking. The Corporation propose to supply 16-candle gas. No maximum price is stated, it probably being fixed by the company's Act of 1855, which is to form part of this Act.

The following private Bills, for which notice had been given, will not be proceeded with:—

Dublin Corporation (New Works); Edinburgh and District Water; Hartlepool Gas and Water; High Wycombe Water; Holywell Water Order, 1871; Pontypridd Improvement; Twickenham Gaslight and Coke.

The following applications under the Gas and Water Facilities Act have been abandoned:—

Atherton Gas; Sudbury and District Gas Supply.

The Gas-Works Clauses (1847 and 1871) Amendment Bill has been withdrawn.

Circular to Gas Companies.

THE question of the day—"Why are coals so scarce and dear?"—is to be submitted to a select committee of the House of Commons. What, if any, occult causes of the dearness and scarcity may be revealed by the investigations of the committee it is impossible to say; but, at present, we are not inclined to believe in any. The case appears to us simple enough. A large demand naturally led the owners to raise the price. The miners, wishing to share in the prosperity, struck for higher wages, and this gave the owners a ready excuse for making a still further rise, followed, in some cases, by further demands on the part of the colliers. An indisposition to work on the part of the men, which diminished the output, furnished the owners with another excuse for a rise in price. Naturally the dealers, here in London especially, enjoying a certain monopoly, were not slow to follow suit, and in this way coals have come to present rates, with but little diminution of the demand for them. It would appear that, so far as the supply of the general public is concerned, the most exorbitant profits have been made by the dealers, and an important part of the inquiry of the committee will be to ascertain how it happens that these enjoy a monopoly in the metropolis. To gas companies the inquiry is of little importance. Coals they must have, and to have them they must pay for them. The question for the companies, tied down to a maximum price at a time when coals were but one-half, or even two-thirds of the present prices, is how to obtain power to raise their charges.

We notice with some regret that the Bill prepared by the Gas and Water Companies Association, to amend the Gas-Works Clauses Acts, has been withdrawn. A deputation from the association is, however, to have an interview with the President of the Board of Trade at an early date, and, as we said in our last, we hope the Government will be induced to bring in a measure to effect the objects desired by the Bill withdrawn. The reason of the withdrawal, we understand, was a suggestion that public general Acts could not be amended by a private measure. The objection, doubtless, has force, although we know that the provisions of general Acts are often "expressly "varied" by special enactments. But whatever is done, we hope the means of obtaining a revision of price will be more simple than those prescribed in the latest metropolis gas Acts. We confess we look with some alarm at the possible costs of the revision asked for by the Chartered Company. The commissioners for the purpose are now appointed, and we understand will begin to sit in the course of the present week. No objection can be alleged against the appointments, but we should have been better pleased if the commission included a practical gas engineer. The South Metropolitan Act expressly provides that one of the Commissioners "shall practically understand the making of gas and its distribution," but neither the City of London Gas Act nor the Imperial Company's Act contains the same provision. Dr. Odling's appointment fulfils the condition to a certain extent; but, at all events, the South Metropolitan Company's Act contemplates the appointment of a practical gas engineer. The other commissioners—Mr. Reilly, a barrister attached to the Board of Trade as parliamentary draftsman, we believe, and Mr. Pattison, actuary to an insurance company—are, no doubt, perfectly competent and impartial persons. If the inquiry about to be entered upon be thorough, it must necessarily be long, and yet can have but one conclusion. The opposition of the Corporation of London, we fancy, is lukewarm, but the Metropolitan Board may be more energetic. It is strange that the tradesmen who mainly constitute these two bodies should protest against a gas company doing that which no one of themselves would hesitate to do in conducting his own business; but some men are entirely different beings, according as they are sitting in a board-room deciding on another's profits, or standing behind their counters disposing of their own wares.

We have said that the inquiry can have but one conclusion, but we understand that the Chartered Company offer the option of gas of lower illuminating power at the present prices, or gas of the same quality as now supplied at an advanced price. The commissioners have power to decide which of these courses shall be adopted, with the proviso that if the illuminating power be reduced, it shall not be under the twelve candles prescribed by the Act of 1860. We have little doubt which course would be most acceptable to the majority of consumers. They would, we believe, prefer a lower quality at the same price, and their choice would be correct. What line will be taken by the Corporation and Board of Works we do not know; but we presume their opposition will be directed against any reduction of quality or increase of price.

We have no wish to alarm gas companies, but we have to make an announcement at which they may weep or laugh as they please. The Society of Arts have appointed a committee to communicate with the municipal corporations of the kingdom, and inquire into the causes, if any, which impede the adoption of efficient means for obtaining an adequate and economical supply of water, gas, and other sanitary requisites, with a view to obtain, if necessary, general legislation thereupon. Two of the three of whom the committee is composed are Mr. Edwin Chadwick, C.B., and Mr. Robert Rawlinson, C.B. There are some—probably two, at least—who may say, "We have a House of Commons, and we have a "House of Lords; but thank God we have also a Society of Arts!" Looking back over some few years, it is difficult to say with what subject of public interest this wonderful society has not busied itself, and yet it may be asked what good has it done? One of its most ardent supporters said, a few years ago, that the best thing it ever did was to produce a shilling box of paints; and we cannot call to mind that it has done anything better since. Knowing the general disposition of municipal corporations, it is not difficult to anticipate the conclusion of a report to the council of the society on the statements made by the corporations, and the general legislation which will be suggested. Legislation, however, still rests with the Houses of Parliament, and is not yet a function of the Society of Arts, so we do not think gas and water companies need be alarmed.

A letter from the solicitors of the Chartered Company, which we publish in another column, corrects an error into which we fell in our last. Our mistake was in assuming that Mr. Manisty had made his award, and that its application depended on the question whether or not the provisions of the Act of 1860 still applied to that part of the undertaking of the Chartered Company outside the City of London. The Court of Error has decided that they do, and now Mr. Manisty has to make the award, which we shall look for with some curiosity.

The half-yearly report of the York United Gaslight Company, which we publish to-day, shows the affairs of the company in an eminently satisfactory condition. They are selling gas at a lower price than any Corporation in the kingdom, are paying their maximum dividend, and yet have a large surplus. This must now be held in reserve to pay the additional cost of manufacture the company will shortly be compelled to encounter, and thus will practically go in reduction of the price of gas, for without such surplus the company must have made an advance. In Corporation hands the surplus profits of the undertaking would most likely have gone to the borough-fund, and the gas consumers would practically have been taxed twice over. It may be worth pointing out here also that when, as is provided in most Corporation Acts, a part of the profits of an undertaking are applied in the redemption of shares or annuities, the practical result is an additional cost of gas to the present generation of gas consumers, for the benefit of a future generation of consumers, and non-consumers also. Certainly, the only equitable mode of applying the profits of an undertaking in the hands of a Corporation is towards maintenance and extension, and in reduction of price

The Corporation of Leeds would appear to have been brought to this conclusion. In the course of the two years they have had the gas-works they have paid £26,000 to the credit of the borough-fund, and now have to borrow £20,000 for a new gasholder, the interest on which sum must be paid by the gas consumer. It is argued that the borough-fund being responsible for deficiencies, it is entitled to surplus profits. But to make the borough-fund responsible for a deficiency is manifestly unjust, for in case of a deficiency the non-consumer would be taxed for the benefit of the consumer. The proper remedy for a deficiency is a rise in price. We have repeatedly pointed out that the only equitable mode of carrying on Corporation undertakings is by making them purely co-operative concerns; but that is not the game of the spoliators.

The Nottingham Town Council are fighting a shadow. The Gas-Works Clauses Amendment Bill has been withdrawn; but, if it had passed, it could have had no such effect as the council seem to suppose. All that the Bill asked for was power to increase the price of gas, so as to pay the maximum dividend allowed by special Acts, but not to raise the dividends beyond the prescribed rates.

With regard to the New Gas Company and their scheme for supplying heating gas, we may mention here, in answer to an inquiry, that supposing the 133,000 feet of gas obtained from a ton of coal in the retorts, by the aid of two tons of coal consumed to generate the steam and keep the retorts red hot, to have the composition assigned by Bunsen to gas produced by passing steam over red-hot charcoal—viz., in round numbers, to be composed of 56 per cent. hydrogen, 30 per cent. carbonic oxide, and 14 per cent. carbonic acid—the heating power of the gas would be little more than one-third of that of the carbon consumed in the retorts and the fuel used. Practically, however, it is not likely that more than a fourth of the heating power of the material consumed would be obtained.

An attempt is being made to procure some amendments to the Municipal Corporations (Borough Funds) Act, which deserves to be carefully looked after by gas and water companies. We are not as yet aware of the nature of the alterations it is proposed to make; but, promoted chiefly, as we understand, by Corporations, in order to give them further powers for the expenditure of their funds for litigious purposes, the movement must be narrowly watched.

Symes's Patent Economic Gas Company is already undergoing the winding-up process—the first of the recent inventions to supersede gas companies which has succumbed. Which will be the next?

The report of the Imperial Company, to be presented to the half-yearly meeting on Thursday next, shows the cost of the stokers strike, which was no less than £21,666. Coals cost this company £24,480 more than in the corresponding half year of 1871. The consequence is that the directors have to draw on their reserve-fund to a small extent in order to pay the maximum dividends. The Liverpool United Gaslight Company have also to make a draw—in their case a heavy one—on the reserve-fund. As another quarter-day approaches we have to resume announcements of advances in the price of gas. The most noticeable to-day is that made by the London Company, from 4s. to 4s. 6d.

REVISION OF THE PRICE OF GAS IN THE METROPOLIS.—We are authorized to make the following announcement:—The Board of Trade, upon application of The Gaslight and Coke Company, under the provisions of the City of London Gas Act, 1868, for a revision of the scale of illuminating power and price of the gas supplied by the company, have appointed Francis Savage Reilly, Esq., barrister-at-law; William Odling, Esq., F.R.S.; and William Pollard Pattison, Esq., actuary, to be commissioners for the purposes of such revision.

WATER AND GAS SUPPLY.—The Council of the Society of Arts have appointed a committee, consisting of Major-General Eardley Wilmot, F.R.S., chairman of the council, Mr. Edwin Chadwick, C.B., and Mr. Robert Rawlinson, C.B., to communicate with the municipal corporations of the kingdom, and inquire into the causes, if any, which impede the adoption of efficient means for obtaining an adequate and economical supply of water, gas, and other sanitary requisites in their respective municipalities, with a view to obtain, if necessary, general legislation thereupon, and to report the result to the council.

ADVANCES IN THE PRICE OF GAS.—The London Gaslight Company have issued the following notice to their consumers:—

Feb. 20, 1873.

Looking at the present and prospective high prices of coal and of all materials used in the manufacture and distribution of gas, as well as to the increased rate of wages, the directors give notice that the price for common gas supplied to you by this company will be at the rate of 4s. 6d. per 1000 cubic feet, from the 1st of April next till further notice.—By order of the board, A. J. DOVE, Secretary.

The price of gas at Dunbar has been raised from 7s. 6d. to 9s. 2d. per 1000 feet, to take effect from the 15th inst. At Kendal the price has been advanced from 4s. 7d. to 5s. The company in that town held their meeting on the 11th inst., and declared a dividend of 10 per cent. At Wincanton the price of gas has been raised from 5s. to 8s. 4d.

STOCKTON AND MIDDLESBOROUGH WATER-WORKS COMPANY.—The half-yearly meeting of this company was held on the 4th inst., at the offices of the company at Darlington. Mr. Henry Pease, chairman of the company, presided. The chairman congratulated the shareholders upon the last half year's working. The secretary, Mr. T. A. Simpson, read the report, which stated that there was an available balance on the half year of £10,100, out of which £500 was carried to the reserve-fund, amounting to £4000. Dividends were declared on the original A shares at the rate of 12s. 6d. per share, with the addition of a bonus of 7s. 6d. per share; on the B and D shares paid up at the rate of 10s. per share, and on the D shares (third issue) at the rate of 2s. 11d. per share. The report alluded to the probability, owing to the growth of the staple trade, of asking legislative sanction for the raising of additional capital. There was a discussion on the necessity of increasing the reserve-fund, but nothing was decided. With regard to the liabilities of Mr. Hall, the late secretary, it was stated that nothing had yet been received, but that the money was safe, and £2000 would have to be paid in March. The chairman moved the adoption of the report, which Mr. G. Allison seconded, and in doing so threw out a hint that a larger price for water should be charged to the Middlesborough manufacturers, which is about 3d. per 1000 gallons—the same price as fixed in 1851. The report was adopted.

Correspondence.

GASLIGHT AND COKE COMPANY *v.* THE VESTRY OF ST. GEORGE'S, HANOVER SQUARE.

SIR,—In the "Circular to Gas Companies" in the JOURNAL of the 11th inst. we find mention made of the above action, and the result of the decision given in the Court of Error on the 1st inst. is thus stated:—"Putting the case in the fewest words it amounts to this." The vestry refused to pay for common gas supplied to public lamps because it contained more than 20 grains of sulphur allowed by the Metropolis Gas Act, 1860, and the Court of Error has decided that they were justified."

Will you allow us to say that the only question which went to the Court of Error, and was decided by them on the 1st inst., was the *legal* point whether or not the provisions of the Metropolis Gas Act, 1860, as to sulphur impurity still applied to the undertaking of the company out of the City, and this point they decided in the affirmative, thereby affirming the decision of the court below.

But the main point in the action—viz., whether the vestry are liable to pay wholly or in part for the gas supplied, assuming it to have contained more than 20 grains of sulphur, was not in any way dealt with by the Court of Error, it having been referred by the court below to Mr. Manisty, Q.C., who will now have to decide the question; and this being so, we, of course, refrain from any comment on this part of the case.

Requesting the favour of the insertion of this letter in the next number of your valuable JOURNAL, We remain, &c.,

CURTIS AND BEDFORD, Attorneys for the Plainitffs.

Haberdashers Hall, Staining Lane, E.C., Feb. 14, 1873.

THE PATENT GAS COMPANY.

SIR,—Discourtesy is a very weak weapon with which to try to silence discussion; and I am surprised that Mr. Mellor should have resorted to it, in the intemperate and unfounded statements he made in speaking of me at the meeting of the Patent Gas Company, as reported in the last number of the JOURNAL OF GAS LIGHTING.

To attempt to disparage the opinion and judgment of an opponent by making *unfounded* statements is a very dangerous game to play; as, although it may ensure a momentary triumph, yet when such discourteous remarks appear in print, and especially in the JOURNAL OF GAS LIGHTING, he who attempts such a game will be sure to meet with the well-merited condemnation of all sensible men. Mr. Mellor must have known better when he stated "that I was not a gas manufacturer, but only a manufacturer of gas-fittings." Having erected more gas-works than Mr. Mellor has seen, and having a large capital invested in six gas-works of my own in this country and abroad, and which are in my own hands, besides having the management of others in which I am interested, and moreover never having manufactured gas-fittings in my life, I will, in charity, suppose that Mr. Mellor spoke in *ignorance* of this fact; but I think I may fairly accuse him of speaking with rashness, to serve the purpose of the moment—a thing which I think a *gentleman* should not have done. As for his other remarks I pass them over. Time will prove whether my opinion and judgment have been in fault in those I have given upon the patent gas. I can only repeat what I have before said, that if by the Eveleigh patent I could see my way to save one penny per 1000 cubic feet in the cost of the gas in the holder, I would adopt it; but so far from this, I believe it not only to be a money-losing process for the gas manufacturer, but also for the *bonâ fide* investors in the shares of the company. The reasons why I think so have already been given, and need not be repeated. I adhere to them, and I think others connected with the company are also beginning to see that the only possible chance for them is to distil coal at a low heat, in the hope of rendering the use of cannel unnecessary; but if this be the full-blown invention after it has been developed from the "germ," which was purchased of Dr. Eveleigh, then all I can say is *that every man in the kingdom is free to distil coal at a low heat, by which he will get quality but not quantity, without paying the Patent Gas Company one farthing as royalty.* Which is the cheaper of the two has still to be proved. My own decided opinion is that the use of cannel will be by far the cheaper. *Quick distillation and quantity from common coal by a continuous mechanical operation* is what we should aim at, and quality, by the use of cannel, where the illuminating power has to be greater than common coal will give. If your readers will refer to the letters I have written in the JOURNAL OF GAS LIGHTING on the various gas schemes which have been brought before the public, with quite as great a flourish of trumpets as this of Dr. Eveleigh's, during the past 20 years, the *results* of my prognostications upon them may be taken as some test of the reliance which may be placed on my judgment on this patent gas. Even while I am writing, I notice in *The Times* an advertisement announcing the winding-up of "Symes, Patent Gas Apparatus Company," a thing which I fully anticipated in my letter to you, dated April of last year, one-half of which was about this patent, and the other about the patent gas.

The engineer said in his speech to the shareholders that all they got of Dr. Eveleigh was the "germ of an admirable principle." I think the prospectus did not say so, but it represented that they had an invention which was going to revolutionize gas making. The end is surely coming. When the £50,000 cheques have ceased to fall into the coffers of the company, and when the process settles down to *commercial work*, the bubble will burst, and shareholders will find the "germ" still undeveloped, for the reason that neither capital nor skill can make the Eveleigh patent to pay.

One word, before closing, upon the letter of Messrs. Porter and Lane, in which they say that they considered I had their screw retort in my mind when I stated, in my previous letter, that "what we wanted was a continuous method of feeding and discharging retorts entirely different to anything we yet had," is an error on their part, as I had this patent in my mind when I said *entirely different*, for I was aware that a Mr. Higginbotham, in 1835, patented the use of the screw passing *through* a retort, and that I (about 14 years ago) patented the use of a screw to feed conical retorts; but, excepting for non-caking coals, they did not answer. No! the screw is not the thing to relieve us. We shall have it by-and-by. The steam stoker, when it answers, is half way on the road. Who will invent the other half? There is an enviable fortune for him if he do not get into the hands of those gentlemen called Promoters.

GEO. BOWER.

St. Neots, Feb. 20, 1873.

GAS-MAINS.

SIR,—Referring to the letter of Mr. Collingwood in your JOURNAL of Feb. 11, would it not be advisable to build the main-pipe of *concrete* (a combination of small stone or other hard substance with cement)? and, if so, what shape would be best, and where is the best source for materials and workmanship, and at what rates?

INQUIRER.

SIR,—A correspondent asks for some information respecting the practicability of laying glazed earthenware pipes in lieu of cast iron for gas-mains, and in reply to his request I am in a position to inform him that some ten or twelve years ago I lighted the town of Spa, in Belgium, and nearly the whole of the distributing mains were glazed earthenware; but this was done contrary to my advice, chiefly, however, on account of the inferiority of the pipes themselves. After a few years (with the exception of the leading main) they had to be taken up, as the breakage was very excessive. I think I am right in saying that the

towns of Louvain and Tirlemont had also these pipes in them; but whether they continue to use them or not now I cannot say. Those which I used were made specially for the distribution of gas, and had in the centre of each 3-feet length a ferrule properly arranged for the insertion of the service-pipe.

St. Neots, Feb. 20, 1873. GEORGE BOWER.

Parliamentary Intelligence.

HOUSE OF LORDS.

MONDAY, FEB. 10, 1873.

METROPOLIS WATER SUPPLY.—"Minutes of Proceedings taken before the Commissioners appointed by the Board of Trade to hold an Inquiry in relation to the Regulations for a Constant Supply of Water to the Metropolis, under the Metropolis Water Act, 1871, with appendix and index," were presented by command, and ordered to be printed.

TUESDAY, FEB. 11.

The LORD CHANCELLOR acquainted the House that the Clerk of the Parliaments had laid upon the table the certificates from the Examiners that the Standing Orders applicable to the following Bills had been complied with:—Aberystwith Gas; Beckenham Sewage; Bradford Improvement; Chelsea Water; Chichester Water (No. 2); Dun Drainage; Durham Consumers Gas; Durham Gas; Gosport Gas; Grantham Water; Leicester Gas; Over Darwen Local Board of Health; Pontefract, Tanshelf, and Carleton Gas; Portsmouth Borough Water.

The Standing Orders applicable to the following Bills were declared not to have been complied with:—Chichester Water (No. 1); Dewsbury and Batley Corporation Gas.

THURSDAY, FEB. 13.

The following Bills were read a first time:—Aberystwith Gas; Chelsea Water; Durham Consumers Gas; Durham Gas; Gosport Gas; Grantham Water; Leicester Gas; Pontefract, Tanshelf, and Carleton Gas; Portsmouth Borough Water; Beckenham Sewage; Bradford Improvement; Chichester Water (No. 1); Dun Drainage; and Over Darwen Local Board of Health.

The LORD CHANCELLOR acquainted the House that the Standing Orders had been complied with in the case of the Colne Water Bill, and that the Standing Orders had not been complied with in the case of the Sheffield Corporation Water Bill.

MONDAY, FEB. 17.

The following Bills were read a second time:—Beckenham Sewage; Bradford Improvement; Briton Ferry Local Board; Dun Drainage.

CHELSEA WATER BILL.

Lord CAIRNS gave notice that on the motion for the second reading he would move the rejection of this Bill.

The LORD CHANCELLOR informed the House that the Standing Orders applicable to the Grantham Water Bill had been complied with.

The following Bills were read a second time:—Chichester Water, No. 2; Colne Valley Water;

THURSDAY, FEB. 20.

Petitions were presented against the Bradford Improvement Bill, by the official liquidator of the Bradford Navigation Company; the Keighley Local Board of Health; and T. J. Sunderland and others. A petition against the Pontefract, Tanshelf, and Carleton Gas Bill was presented by the Lancashire and Yorkshire Railway Company.

The LORD CHANCELLOR informed the House that the further Standing Order applicable to the Chelsea Water Bill had been complied with.

The following Bills were read a second time:—Over Darwen Local Board; Durham Gas; Gosport Gas; Leicester Gas; Aberystwith Gas.

FRIDAY, FEB. 21

The Grantham Water Bill was read a second time.

Petitions were deposited against the Bradford Improvement Bill, by the Eccleshall and Bolton Gas Company; the Shipley Gaslight Company; and by Charles Clayton, James Dixon, and C. B. E. Wright;—against the Chelsea Water Bill, by the inhabitants of Kingston-upon-Thames and the Corporation of Kingston-upon-Thames.

HOUSE OF COMMONS.

MONDAY, FEB. 10.

Mr. BONHAM-CARTER reported that, in accordance with Standing Order 87, he had conferred with the Chairman of Committees of the House of Lords for the purpose of determining in which House of Parliament the respective Private Bills should be first considered, and that they had determined that the Bills contained in the following list should originate in the House of Lords:—Aberystwith Gas; Beckenham Sewage; Bradford Improvement; Chelsea Water; Chichester Water (No. 1); Chichester Water (No. 2); Colne Valley Water; Dun Drainage; Durham Consumers Gas; Durham Gas; Gosport Gas; Grantham Water; High Wycombe Water; Leicester Gas; Mid-Lothian Water; Over Darwen Local Board of Health; Pontefract, Tanshelf, and Carleton Gas; Portsmouth Borough Water.

WATER SUPPLY (METROPOLIS).—Copy of minutes of proceedings taken before the commissioners was presented by command, and ordered to lie on the table.

TUESDAY, FEB. 11.

The following Bills were read a first time:—Bournemouth Gas and Water; Brighton and Hove Gas; Gaslight and Coke Company; Burley Local Board; Wakefield Water; Wrexham and East Denbighshire Water; Crystal Palace District Gas; Grand Junction Water; Glasgow Corporation Gas; Ayr Burgh; Dumbarton Burgh; Dewsbury and Batley Gas; Trowbridge Water; Pontypool Gas and Water; Stockton-on-Tees Gas; Lincoln Gas; Partick, Hillhead, and Maryhill Gas; Glasgow Corporation Water; Belfast Gas; Derby Water; Newcastle-upon-Tyne and Gateshead Gas; Nottingham Gas; Nottingham Water; Sheffield Water; Lea Bridge District Gas; Tenby Water; Atherton Local Board; Barrow-in-Furness Corporation; Okehampton Corporation; Atherton Gas; Kingstown Township; and Scarborough Gas.

DEWSBURY AND BATLEY CORPORATION GAS.—Report in respect of non-compliance with Standing Orders laid upon the table, and referred to the Select Committee on Standing Orders.

WEDNESDAY, FEB. 12.

The following Bills were read a first time:—Chigwell, Loughton, and Woodford Gas; Bristol United Gaslight Company; Neath New Gas; Doncaster Corporation Water; Sutton, Southcoates, and Drypool Gas.

THURSDAY, FEB. 13.

The following Bills were read a first time:—Buxton Local Board; Imperial Gaslight and Coke Company; Sheffield Corporation Water.

THE SUPPLY OF COAL.

Mr. MUNDELLA announced his intention of moving on an early day for a Select Committee to inquire into the causes of the present dearness and scarcity of coal.

Mr. W. H. SMITH asked the First Lord of the Treasury whether it was in the power of Parliament to impose any duty or restriction upon the export of coal from the United Kingdom, which amounted to 13,200,000 tons in 1872, valued at £10,400,000, against an export of 12,700,000 tons in 1871, valued at £6,200,000; and if it was the intention of Her Majesty's Government to propose any such duty or restriction.

Mr. GLADSTONE: It is not in the power of Parliament at this moment to impose a uniform duty on the export of coal irrespective of the countries to which it is sent, though it is in its power to impose such a duty, if it should think fit, in all cases where we have no treaty obligations to the contrary. We are bound to a contrary effect in relation to France. That obligation comes to a close in the middle of next month, but there is a treaty of 1865 with the Zollverein which imposes a similar obligation; and, although the new treaty with France contains no such stipulation, France, if it takes effect, can claim, until the expiration of the treaty with the Zollverein in 1877, the privileges of the most favoured nation. There is also in existence a treaty with Austria, entitling her to claim exemption for the next three or four years. For several years to come, therefore, Parliament would be practically prevented from imposing such a duty; and, as the hon. gentleman has made a reference to the policy of that course, I think I may safely say, on behalf of the Government, that, even if our hands were free, we should not ask Parliament to impose such a duty.

On the motion of Mr. HUSSEY VIVIAN, a return was ordered of the quantities of coals, cinders, and culm, and patent fuel shipped at the various ports of the United Kingdom; of the value of the coals, cinders, and culm exported last year, and the amount of duty thereon; and of the quantities of coals and patent fuel brought coastways by inland navigation and by railway into the port of London during the year 1872 as compared with 1871; and of the quantities of coals and patent fuel received coastways at the various ports of the United Kingdom.

SANITARY ACTS.

Sir C. ADDERLEY asked the President of the Local Government Board whether it was his intention to introduce measures this session amending any of those Sanitary Acts imposing duties on local authorities which the Sanitary Commissioners recommended to be repealed and re-enacted in one bill.

Mr. STANSFELD said he was not able to give his right hon. friend as definite an answer as might be desired. He should be glad to introduce a measure of that nature, but whether he could do so or not would entirely depend on the progress of public business.

A petition was presented against the Bill of The Gaslight and Coke Company, by Alexander Cullen and others.

FRIDAY, FEB. 14.

The following Bills were read a first time:—Harrow Gas; Uxbridge and Hillingdon Gas.

MONDAY, FEB. 17.

The following Bills were read a second time:—Doncaster Corporation Water; Glasgow Corporation Gas; Glasgow Corporation Water; Lea Bridge District Gas; Stockton-on-Tees Gas; Tenby Water.

The following Bills were read a first time:—Dublin Corporation Gas.

Petitions were presented against the Atherton Gas and the Atherton Local Board Bills, by the Leigh District Gas Company.

TUESDAY, FEB. 18.

The Buxton Local Board was read a second time and committed.

SANITARY ACTS.

Sir C. ADDERLEY, in answer to Mr. Raikes, said he hoped that those who were members of the Sanitary Commission would be permitted to reintroduce their measure relating to the public health this session, with the view of collecting in one Bill such powers and duties of the local authorities throughout the kingdom, as were now scattered over 19 or 20 Acts of Parliament. He also expected, from what had fallen from the Prime Minister the other day, that they would have the assistance of the Government in dealing with the subject.

SUTTON SOUTHCOATES AND DRYPOOL GAS BILL.

Mr. CHARLES FOSTER gave notice that he should move that the order (Feb. 14) for the second reading of this Bill be read and discharged, and that the Bill be referred to the Examiners of Petitions for Private Bills.

OKEHAMPTON CORPORATION BILL.

Mr. HIBBERT gave notice that on the second reading of this Bill, he should move—"That it be read a second time upon this day six months."

Petitions were presented against the Bills of The Gaslight and Coke Company and of the Imperial Gas Company, by the Vestry of Paddington;—and against the Sheffield Corporation Water Bill, by Joseph Oxspring and others, and William Cockayne and others.

WEDNESDAY, FEB. 19.

The Ayr Burgh and the Dumbarton Burgh Bills were read a second time and committed.

The order for the second reading of the Sutton, Southcoates, and Drypool Gas Bill was discharged, and the Bill was referred to the Examiners of Petitions for Private Bills.

A petition was this day deposited at the Private Bill Office, against the Dublin Corporation Gas Bill, by the Alliance and Dublin Consumers Gas Company (*against alterations*).

Petitions were also deposited against the Dumbarton Burgh Bill, by Lord Blantyre;—against the Bill of The Gaslight and Coke Company, by the Poplar District Board of Works and the Vestry of St. Mary Abbotts, Kensington;—and against the Bill of the Imperial Gas Company, by the Poplar District Board of Works.

THURSDAY, FEB. 20.

The Dewsbury and Batley Corporations Gas Bill was read a first time.

Petitions were deposited against the Barrow-in-Furness Corporation Bill, by R. Hannay; G. H. C. Sunderland; and J. Fell;—against the Burley Local Board Bill, by the Corporation of Leeds;—against the Dumbarton Burgh Bill, by the Dumbarton Gas Company;—against The Gaslight and Coke Company's Bill, by the Westminster District Board of Works;—against the Grand Junction Water-Works Bill, by the trustees of the Hampton and Hampton Wick Schools;—against the Nottingham Gas and Nottingham Water Bills, by the Corporation of Nottingham;—against the Partick, Hillhead, and Maryhill Gas Bill, by the Corporation and Board of Police of Glasgow;—against the Sheffield Corporation Water Bill, by the Sheffield Water Company;—against the Trowbridge Water Bill, by James Hargraves, jun.;—and against the Wrexham and East Denbighshire Water Bill, by ratepayers and consumers of water within the limits of supply of the Cefn, Acrefair, and Rhosymedre Water Company.

FRIDAY, FEB. 21.

METROPOLIS WATER.—A copy of the regulations under the Act of 1871 was presented by command, and ordered to lie upon the table.

Petitions were deposited against the following Bills:—Atherton Local Board, by the Atherton Gas Company, Limited; Ayr Burgh, by Geo. Smith and others; Belfast Gas, by the Corporation of Belfast; Bournemouth Gas and Water, by the Poole Water-Works Company; Burley Local Board, by R. J. Hudson; Derby Water, by Midland Railway Company; Dewsbury and Batley Corporations Gas, and Dewsbury and Batley Gas, by the Lancashire and Yorkshire Railway Company; Doncaster Corporation Water, by the Manchester, Sheffield,

and Lincolshire Railway Company; Dumbarton Burgh, by Sir James Colquhoun, Bart., and the Clyde Navigation Trustees; The Gaslight and Coke Company, by the Corporation of the City of London, the Vestry of St. Leonard, Shoreditch, and Edward Blake and others; Grand Junction Water-Works Company, by the Conservators of the river Thames; Imperial Gaslight and Coke Company, by the Vestry of St. Leonard, Shoreditch; Lea Bridge District Gas, by the Walthamstow Highway Board, inhabitants, &c.; Lincoln Gas, by Great Northern Railway Company; Neath New Gas, by the Corporation of Neath; Nottingham Gas, by the Corporation of Nottingham; Pontypool Gas and Water, by the Abersychan Gas Company; Sheffield Corporation Water, by Geo. Wright; Sheffield Water, by Corporation of Sheffield; Tenby Water, by Corporation of Tenby; Trowbridge Water, by Earl Manners and Great Western Railway Company; Wakefield Water, by Corporation of Wakefield and Midland Railway Company; Wrexham and East Denbighshire Water, by Great Western Railway Company.

RECENT CONVICTIONS OF GAS STOKERS.

Mr. VERNON HARCOURT gave notice, for the 21st of March, that in going into Committee of Supply he will call the attention of the House, in connexion with the recent conviction of the gas stokers, to the unsatisfactory state of the existing law of conspiracy, and also to the exceptional policy of the Legislature, which enforces the civil contract of service by criminal penalties.

DEARNESS AND SCARCITY OF COAL.

On the motion for going into Committee of Supply, Mr. MUNDELLA proposed the appointment of a Select Committee to inquire into the causes of the present dearness and scarcity of coal, and to report thereon to the House.

Mr. LIDDELL seconded the proposal, to which Mr. Bruce, on behalf of the Government, acceded, and it was at once agreed to.

SATURDAY, FEB. 22.

Petitions were this day deposited against the following Bills:—Atherton Gas, by the London and North-Western Railway Company and the Atherton Local Board; Atherton Local Board, by inhabitant ratepayers, London and North-Western Railway Company, and Baron Lilford; Barrow-in-Furness Corporation, by Jno. Shaw, Job Bintley, Ulverston Water Company, and owners and occupiers of lands, &c.; Brighton and Hove Gas, by the Corporation of Brighton; Crystal Palace District Gas, by the Metropolitan Board of Works; Derby Water, by Cockshutt Heathcote; Doncaster Corporation Water, by C. Wilson and trustees of the late Duke of Leeds; Gaslight and Coke Company, by the Vestry of St. Martin's-in-the-Fields and other vestries and district boards of the metropolis, Metropolitan Board of Works, and J. I. French; Glasgow Corporation Water, by William Dixon and others, and by owners and occupiers of factories; Imperial Gaslight and Coke Company, by the Vestry of St. Pancras and other vestries and district boards of the metropolis and by the Metropolitan Board of Works; Lea Bridge District Gas, by R. J. Hendrie; Lincoln Gas, by the Corporation of Lincoln; Newcastle-upon-Tyne, by the Corporation of Newcastle and the Corporation of Gateshead; Nottingham Gas, by the Nottingham Town Lighting Committee, the Vestry of Standard Hill, &c., Lenton Local Board, Sneinton Local Board, and Vestry of Radford; Nottingham Water, by the Vestry of Standard Hill, &c., Vestry of Radford, Sneinton Local Board and Lenton Local Board; Partick, Hillhead, and Maryhill Gas, by trustees for the Kelvinside Estate Company; Pontypool Gas and Water, by G. G. Rous and G. Gore, T. J. and F. Moggeridge, and others, and by the inhabitants and consumers of gas and water; Sheffield Corporation Water, by owners, &c., of mills or rivers Rivelin, Loxley, and Dun; Sheffield Water, by owners, &c., of property in Sheffield; Wakefield Water, by Aire and Calder Navigation Company.

GAS-WORKS CLAUSES ACTS, 1847 AND 1871, AMENDMENT BILL.—The authorities of both Houses having objected to this Bill, which they regard as a proposal to amend two public Acts by a private Bill, being proceeded with in that shape, it has been found necessary to withdraw it. An application will now be made to the President of the Board of Trade to receive a deputation of gas companies, and hear what they have to say; when, if he is disposed to favour their views, the Bill will be brought forward again, under the name of a member, and proceeded with as a public measure.

Legal Intelligence.

VICE-CHANCELLOR'S COURT.—FRIDAY, FEB. 14.

(*Before Vice-Chancellor Sir* R. MALINS.)

In re THE DUTCH WATER-WORKS COMPANY.

This company was ordered to be wound up compulsorily. It was formed for the purpose of supplying the town of Flushing and the city of Middleburg with water; £12,000 only of the capital had been subscribed, and remained intact, not a penny having been drawn out by any of the directors; but as about £64,000 more was required by the company to carry out the undertaking, they had resolved not to proceed further with it.

Mr. GRAHAM HASTINGS appeared in support of the winding-up petition; Mr. HIGGINS, Q.C., and Mr. WESTLAKE for the company; and Mr. CALDECOTT for contributories.

COURT OF COMMON PLEAS, GUILDHALL.—FRIDAY, FEB. 21.

(*Before Justice* BRETT *and a Special Jury.*)

THE PORTSEA ISLAND GAS COMPANY *v.* RANSOM.

Mr. LANYON and Mr. LODGE appeared for the plaintiffs; Mr. COLE, Q.C. and Mr. INGHAM for the defendants.

The plaintiffs in this case are a company supplying Portsmouth and the adjoining townships with gas, and they sued the defendant, who is a shipowner, for the loss of 142 tons of coal, shipped on board a schooner of his called the *John Clements*. There was little or no contest between the parties as to the facts of the case, the main question being whether these coals were lost by any of the perils of the sea excepted in the bill of lading under which they were delivered on board the defendant's ship. It appeared from the plaintiff's evidence that the *John Clements* arrived at the port of Methil, in the Frith of Forth, in the afternoon of the 2nd of January, and finished loading coal there for the plaintiffs on the 6th, the bills of lading being signed on that day. On the 8th she sailed from Methil at three in the afternoon, the sea being perfectly smooth, and there being no wind. Some hours afterwards the pumps were sounded, and it was found there were four feet of water in the hold, which could not be got under; and at nine o'clock, in a calm sea, the ship foundered. There was not the slightest pretence for supposing the existence of any foul play, but the point for the plaintiffs was that the vessel was not lost through any of the excepted perils provided against in the bill of lading. It appeared that Methil is a dry harbour, and that while the ship was lying there, her bottom being on a hard loam, she strained herself to a considerable extent. The evidence of the mate, and one of the sailors, went to show that as she lay at the pier it was found that her stern post was strained, the pitch had started, and that several times during the time she was taking in her cargo they had to open the lockers with a crowbar. For the plaintiffs it was therefore contended that the loss of the cargo was attributable not to the perils of the sea, but to the unseaworthiness of the ship, which was a coasting schooner 20 years old.

On behalf of the defendant it was argued that proximately, on the evidence put in by the plaintiffs, the loss arose by the perils of the sea, there being no allegation of negligence. The vessel, it was alleged, was chartered to Leith with a cargo of bark, which she delivered in good condition; that she was at that time perfectly seaworthy; that she was there taken up and chartered by Mr. M'Kelvie, a coal merchant, of Edinburgh, by whom she was sent to Methil, to take in the coal in question for the consignees, the Portsea Island Gas Company. It was contended that the voyage commenced at Leith, and that if she sustained any damage in crossing the Forth before reaching Methil, such damage must be accounted as incident to the voyage, as also the effects of her grounding for a large portion of the two days she remained at Methil after receiving her cargo on board. In opposition to the evidence that the sea was calm when the vessel sank, a Leith pilot was called, who stated that he was in the Forth on board a steam-tug, a few hours after she sailed from Methil, that there was a heavy ground swell on at the time, and that the *John Clements* rolled so much that he was afraid to put his tug alongside the schooner.

Justice BRETT, in summing up the case, said it was clear from the bill of lading that the voyage did not begin until the ship "broke ground," in order to sail from Methil with coals on board, and therefore any damage sustained by her in crossing from Leith, or while lying at Methil, had nothing to do with the matter, inasmuch as the defendant undertook that she was in good order and seaworthy when her cargo was taken in. The only question the jury had to try was whether upon that voyage the ship was lost by the perils of the sea. He was sorry that in the course of the arguments for the defence it had been stated that this was an underwriter's action. There was not the least evidence of it; but, supposing it to be so, and that the underwriters had paid the loss sustained by the gas company, it was a part of the law that the assured was bound to lend his name for the purpose of bringing an action, and the jury were bound to decide the case as if the gas company were the actual instead of the nominal parties in the suit.

The jury almost immediately returned a verdict for the plaintiffs, damages £99, and the learned judge certified for a special jury, and that the case was one which could not have been tried under the Admiralty jurisdiction of the county court.

COURT OF SESSION, EDINBURGH.—WEDNESDAY, FEB. 19.

(*Before Lord* MACKENZIE.)

THE CORPORATION OF GLASGOW *v.* HAMILTON, M'CULLOCH, AND CO.

This was an action brought by the Corporation of Glasgow as the owners of the gas-works in that city, against the defendants, who are coalmasters in Glasgow, to obtain a declaration of the validity of a contract for the supply of 30,000 tons of gas coal, entered into by the defendants at the price of 12s. 3d. per ton, between the 1st of August, 1872, and March, 1874, and that under that contract the defendants were bound to deliver to the corporation not less than 1500 tons in each of the months of December, 1872, January, 1873, and December, 1873, and January, 1874; also that the defendants were bound to deliver in each of the other months during the contract 1500 or nearly 1500 tons, any deficiency in that quantity to be made up in the following month, or shortly thereafter. The summons also asked for a decree that the defendants failed, during each of the months of August and September, 1872, the requisite quantities of coal; that in the event of the defendants failing to fulfil their obligations they should be adjudged to make payment to the corporation of £30,000; and that in any event they should be adjudged to pay to the corporation the sum of £1500.

The defendants pleaded that the agreement alleged to have been entered into by the letters of the 22nd of February and the 12th of March, 1872, was merely inchoate, and, never having been completed, was not binding on them; but even if binding, the agreement could not be construed as binding the defenders to a regular and proportional delivery per month, and that in any view of the case the claim for damage was excessive. The case was to have gone to proof on the previous day, but proof was abandoned in consequence of a proposed arrangement between the parties, which was completed this day. By this arrangement the pursuers have got decree in terms of the declaratory conclusions of the summons, with expenses.

WORTHING COUNTY COURT.—MONDAY, FEB. 10.

(*Before W.* TURNER, *Esq., Judge, and a jury.*)

HALFHIDE *v.* WORTHING GAS COMPANY.

Mr. LAMB appeared for the plaintiffs, and Mr. MERRIFIELD for the defendants.

This was an action arising out of an alleged breach of agreement for a supply of gas, for which the plaintiff claimed £50 damages.

Mr. LAMB said the plaintiff was the landlord of the Brunswick Hotel, at West Worthing. He became tenant of the premises in Feb., 1872, and at that time he applied to the company for a supply of gas. He was informed by them that they declined to accede to his request, unless a sum of money was deposited with them as security, as it appeared that previous occupiers had left without paying their gas-rents. Plaintiff at first refused to do so, but afterwards paid £2 10s., for which the manager of the company (Mr. Richmond) gave him a receipt "for gas and meter-rent in advance." At the close of the March quarter the company sent him in an account for £1 19s. 6d. for gas and meter-rent. On the 12th of June he was served with a "special notice that unless that amount was paid before the following Friday the supply of gas would be discontinued." To that communication he replied, stating that he declined to pay on the ground that the company had £2 10s. of his money in their hands, which was more than the amount due from him. On June 17 he was served with a notice to the effect that as he had refused to allow the company's workmen to discontinue the supply of gas, the company would enter upon his premises at the expiration of 24 hours, and remove the meter and main-tap, under the powers vested in them by their Act. The gas was accordingly cut off, and on the following day the plaintiff received a statement headed "Last Application," containing the following items:—"June 18, Mr. E. J. Halfhide, debtor to the Worthing Gas Company. To account rendered to Lady-day, £1 19s. 6d.; expenses, cutting off gas, 5s.; state of meter up to June 18, £1 8s. 6d.; meter-rent, 1s. 6d.—£3 14s. 6d." From this amount the £2 10s. paid in February was deducted, leaving the claim against the plaintiff £1 4s. 6d. This was accompanied by a threat of proceedings if the balance was not paid by the following Thursday. Plaintiff was subsequently summoned before the magistrates, who struck off the 5s. for cutting off the gas, and ordered him to pay the balance, 19s. 6d., which he did. Some time afterwards the plaintiff asked the defendants to resume the supply of gas, but they declined to do so unless he paid the expenses of putting it on again; and this notwithstanding the fact that they had quite illegally cut the gas off, the amount due at the time being covered by the payment which the plaintiff had made in advance, seeing that the second quarter's rent was not then due. Under these circumstances the plaintiff asked for substantial damages for the injury and loss of business he had sustained.

The *Plaintiff* was called, and deposed to the above facts. He said: The gas fittings were in the house at the time I took it, as the premises had been occupied before. I gave notice to the company, and asked for a supply of gas. Mr. Richmond, the manager, called upon me. He said he had lost money by two previous tenants, and asked me if I would oblige him with a reference. I referred him to Messrs. Ashby and Co., brewers, Brighton. He called again about two or three days afterwards, and said he had heard from Messrs. Ashby, but they had said nothing about the gas. He asked if I would mind giving a deposit. I said certainly not, but asked what interest they would allow me if I stayed in the house for 20 years. I said I did not mind paying a quarter in advance if he would give me a proper receipt for it. I paid £2 10s., and he gave me a receipt for that sum on account of "gas and meter rent in advance." After the gas had been cut off in June, I wrote to Mr. Richmond, requiring the gas to be laid on again. He called three or four days subsequently, and said, "If you will pay

for the cutting off and the laying on of the gas I will put it on for you at once." I said I objected to pay for this, and he made no reply whatever, but walked away. Mr. Richmond brought a workman with him. I have 30 rooms in the house. I think there are about 29 burners in the house. I think there are about 10 rooms supplied with gas. The cutting off of the gas had a serious effect upon my trade. We have had lots of people call at the house during the season, but as soon as they found out there was no gas they refused to take the apartments. I do not think that £50 will anything like cover my loss for the last nine months.

In cross-examination by Mr. MERRIFIELD, *witness* said: I should not be surprised to hear that Knowles only took £140 the whole time he was there. Then there was not such accommodation for visitors as we have now. When the season was at its height, and every house in the place was full, plenty of visitors would have taken our rooms if there had been gas in them. It was not my duty to pay for the gas being cut off and put on. I waited from July until January before proceedings were commenced.

Mr. MERRIFIELD, for the defence, said there were two questions for the jury—first, whether or not the conditions laid down by the defendant company in this case were not perfectly reasonable conditions. It was argued by Mr. Lamb that the defendants, at the request of any occupier, were bound to furnish him with a sufficient supply of gas, but the 13th section of the Gas-Works Clauses Act, 1847, enacted that the "undertakers may from time to time enter into any contract with any person for lighting and supplying with gas any public or private building, in such manner and upon such terms as shall be agreed upon." Now the question was this: Were the defendants imposing perfectly reasonable conditions when they asked for a deposit? He contended that they were. The hotel in question was notoriously a house that did not pay. Two former occupants had gone away, and then Mr. Halfhide, a stranger to the town, came and took the premises, for no gentleman in Worthing would have taken the house. Was it not reasonable, therefore, for the defendants to ask for a small deposit? As the plaintiff would not pay the gas account, the defendants were justified in exercising the power vested in them for cutting off the supply. The plaintiff broke his agreement by not leaving the £2 10s. in the hands of the company as security. Under the 60th section of the Worthing Gas Company's Act, the defendants had no security against the incoming tenant at all. If there were no deposit, all that a tenant had to do was to wait until the end of the quarter, and then quietly leave. The next question was as to damages. It was clear that the plaintiff was not a large consumer of gas, for the whole of the gas consumed between the 7th of February and the 31st of March, did not amount to more than £1 19s. 6d. It was said that the plaintiff's business had been injured by the discontinuance of the gas supply, and he now claimed £60 damages. But was it not strange if the plaintiff lost so much money in consequence of having no gas at his house, that he should be content to go on without it through the season and down to the present time, when he could have had it laid on in July by paying 10s.? If the plaintiff had sustained loss, did they think he would have allowed 10s. to stand in his way so long? Did they believe if his business had begun to fall off that he would have abstained from making further application to the company? The fact was the plaintiff had found that he had been induced to enter upon a losing speculation; so he thought he would wait until his term had expired, and then see what a jury would award him, in order that he might have something to show against his landlord's account. The company had not had the slightest intimation that an action was hanging over their heads until proceedings had been commenced. The learned counsel characterized the damages claimed as exorbitant, and contended that even if the plaintiff were entitled to anything it would only be to a merely nominal sum.

His HONOUR, in summing up the case, said the question as to the legality of the deposit was entirely at an end, as it was evident that the prepayment of the £2 10s. was acquiesced in by the plaintiff. He must, however, hold that the company had done wrong in cutting off the gas under the circumstances of the case, and refusing to put it on again without payment of the expenses. At the same time it was very obstinate on the part of the plaintiff to allow his business to be damaged for the sake of 10s. The only question for the jury to determine was as to the amount of damages, and he was very glad that it was left for the jury—who knew the house and the nature of the locality in which it was situated far better than he did—to settle such a question. Whether it was fifty pounds or fifty pence it was left to the discretion of the jury to say. There was no criterion given in evidence upon that point. Plaintiff told them he kept no account of his takings. He said he ought to have taken £200 where he only took £100, but whether he thought he ought to have taken £200 or £2000 it did not follow that he would get either amount. The plaintiff was entitled to a verdict for something, and it was for the jury to determine what that something should be.

The jury then retired, and, after a brief deliberation, returned into court with a verdict for the plaintiff. Damages £5.

DUNDEE SMALL DEBTS COURT.—TUESDAY, FEB. 18.

(*Before Sheriff* CHEYNE.)

BLAIR *v.* THE DUNDEE GAS COMMISSIONERS.

This was an action brought by the plaintiff to recover the sum of £2 8s. 1d. from the commissioners, upon an account of which the following is a statement:—

Mr. James Matthew, Manager and Treasurer for the Dundee Gas Commissioners, to William Blair, 40, Wellgate, Dundee.

1873, Feb. 5.

To the sum of eight shillings and one penny, which sum you have illegally and unwarrantably exacted, as per receipt granted	£0 8 1
To loss and damage by me in consequence of your servants, by your authority, illegally and unwarrantably cutting off my gas this day, at 40, Wellgate, depriving me of light from 11 a.m. to 4 p.m., to the loss and injury of my business	2 0 0
	£2 8 1

He also sued them in a separate action for another account:—

Mr. James Matthew, Manager and Treasurer for the Dundee Gas Commissioners, to William Blair, 40, Wellgate, Dundee.

1873, Jan. 1.

To the sum of two pounds sterling, being balance of deposit in your hands belonging to me, and which sum you refuse or delay to pay	£2 0 0

Mr. BLAIR conducted his own case, and Mr. BARNET appeared for the commissioners.

Mr. BARNET stated that the commissioners had done nothing but what they were entitled to do under their Acts. Mr. Blair was indebted to them on an account for gas and meter rent, which he had been repeatedly asked to pay, but which he refused to do. The commissioners, after giving him due notice in terms of and as authorized by their Acts, cut off the gas from his premises. On this being done Mr. Blair called and paid the account, and the gas was again turned on to his premises. In doing this the commissioners had only adopted one of the remedies afforded them by their Acts in obtaining payment of gas-rents from defaulters; and not having exceeded their powers, they were not liable in damages. With regard to the second action, Mr. Blair some time ago asked the commissioners to supply premises of his in Hilltown with gas; but, in consequence of these premises being more than 30 feet distant from the nearest street, the pipes and apparatus for supplying the gas required to be laid beyond this 30 feet at his expense, and by their Act of 1872 the commissioners were entitled to security for payment of such expenses. Mr. Blair accordingly deposited £13 as security, on a special receipt for payment of the expenses. The work had now been done, and the expense amounted to £11 7s.; the balance of £1 13s. Mr. Blair had been asked to take payment of, but he refused, stating that he was to summon the commissioners for payment of it.

Plaintiff stated that the lighting of stairs was involved in this case, and that the commissioners had cut off his gas from his shop for not paying the meter-rents and gas consumed on his stairs in Overgate; that the commissioners had kept the keys of the boxes containing the meters, and had the sole control of them; and that he was not liable for the gas consumed in these stairs.

Mr. BARNET replied, and produced a document signed by Mr. Blair, asking to be supplied with meters, wherein he designated himself a consumer, and he (Mr. Barnet) maintained that this was a rent for gas supplied to Mr. Blair, and the commissioners were clearly entitled to cut off the gas from his premises as they had done. They obtained the keys of the boxes from Mr. Blair, for the purpose of inspecting the meters, and kept them at Mr. Blair's own request; but if he had wished the keys he might have had them by calling at the office. The keys were of no use, as from the bad construction of the boxes the inspectors afterwards found that they could examine the meters without them.

Evidence was then given at some length as to the amount of gas consumed, the time of cutting and turning off the gas at the plaintiff's premises, the construction of the boxes, &c., and of tendering payment of the balance of deposit in the second action.

The SHERIFF gave judgment for the commissioners in the first action, with costs; and, to satisfy Mr. Blair, adjourned the second action for a week, in order that the manager might speak to the charges in the accounts for laying the pipes, &c.

LEICESTER POLICE COURT.

(*Before* R. HARRIS *and* G. BAINES, *Esqrs.*)

FRAUDS UPON THE LEICESTER GAS COMPANY.

On Wednesday, Feb. 12, *William Mitchell*, Steeple Jack, was charged, on remand, with stealing gas, the property of the gas company.

Mr. FOWLER defended.

George Goldsmith said he was chief inspector to the gas company. Prisoner, who lives in Thomas Street, did not at present contract for gas, nor had he ever done so for that house. He had contracted for gas previously. On the 5th instant he went to the house in Thomas Street, in the evening, with Inspector Gilbert and a policeman. Looked over the back wall, saw gas burning in the kitchen, and knocked at the door. It was opened by a girl, who said she had been requested not to let any one in. Looked in the back kitchen and found a gaslight burning there. Prisoner was not at home. Witness could not get into the room where the meter should have been. Left Gilbert in the back room and went out to get keys; returning in a few minutes, ascertained that Gilbert found the key. Went into the front room then, and found an india-rubber tube connected with the company's service. There was no meter. Requested the policeman to press the tube, and the light went out.

By Mr. FOWLER: Witness believed that the prisoner had not applied for a gas-meter to the company.

Thomas Gilbert, another inspector for the gas company, corroborated last witness.

Inspector *Goldsmith*, recalled, produced the book in which all inquiries for meters were entered. Could not find the name of the prisoner. He had been a defaulter, and the company would not have supplied him with gas again without security.

Police-inspector *Hickinbottom* deposed to apprehending prisoner and charging him with stealing gas. He said, "I did take a little to fill a bag, as I wanted it for an experiment. I am quite willing to pay for it, and for a twelvemonth's gas if they like. I have applied for a meter and they had not supplied me. I did not think I was doing so much wrong."

Prisoner, when charged with the offence, pleaded guilty.

Mr. FOWLER said he had advised his client to plead guilty because it would be utterly useless and a waste of time to combat the facts of the case. The story of the prisoner was that he did fix a tube to the service-pipe to get a little gas for the purpose of an experiment in making lime light. Prisoner went from home that day, and the servant seeing the gas-tube, lighted it in the evening. Prisoner, through him, now offered every apology which it was possible for him to make to the gas company. Certainly prisoner had no right to fix the tube in the way he had done, nor to take the smallest quantity of gas, but prisoner's statement was a reasonable one. He asked that a fine might be inflicted.

The BENCH said they had no alternative but to send Mitchell to prison. They could not fine him. The door of the room in which the tube was fixed was locked, and it was evident that the gas inspectors had had some suspicion, for they had taken a policeman with them. How long prisoner had been using the gas, or how long he might have used it if it had not been found out, they could not say. Prisoner would go to gaol for one month with hard labour.

The mayor, being one of the directors of the gas company, retired from the bench during the hearing of this case.

On Friday, Feb. 14, *Daniel Harrold*, residing at 71, Gartree Street, was charged with stealing gas, the property of the gas company.

George Goldsmith, one of the company's inspectors, deposed to visiting prisoner's house with Inspector Gilbert and a policeman, on the evening of the 5th inst., between eight and nine o'clock. Entered the house and requested Gilbert to go upstairs to see the gaslights that were burning there. Called in the policeman, and went into the cellar where the meter should have been. There was no meter, but witness saw that the company's service-pipe was connected with the house fittings by means of a flexible tube. This tube was afterwards pressed, and the gas upstairs went out. When witness went upstairs prisoner had gone out, and on inquiry where he was, was told that he had gone to see a friend of his named Mitchell.

Thomas Gilbert said he visited prisoner's house with last witness. Went upstairs into a back room which was used for shoe finishing. Saw prisoner and two lads at work there by two gaslights. Said to prisoner, "Where do you get your supply of gas from?" He replied, "I get it from Mr. Mitchell, next door." [Mitchell here referred to was the man who was tried on Wednesday for a similar offence, and sent to prison for a month. It appears that he formerly lived in Gartree Street.] Witness then went downstairs and saw that there was no meter. He also saw the tube, and pressing it caused the light to go out upstairs.

Farmer said he charged prisoner with the offence that morning. He said, "Yes, and shall plead guilty and leave it to the gentlemen."

Prisoner pleaded guilty, and was sent to prison for one month, with hard labour.

GEORGETOWN (DEMERARA) GAS-WORKS.—The lighting up of this town took place on the 31st of January last. The works have been erected by an English company, acting under a colonial ordinance, the ironwork having been supplied by the Horseley Company, and the buildings and main-laying carried out for the company under the superintendence of Mr. E. Blanchett, their resident engineer, from the designs of Mr. Alfred Williams, of London.

FATAL ACCIDENT AT KEIGHLEY WATER-WORKS.—On Monday, the 17th inst., a fatal accident occurred to a man named Greenwood Hird, employed at the excavations for the puddle trench of the Keighley Water-Works at Ponden. While a box of stone from the excavations was being hoisted to the top the deceased incautiously went on with his work underneath. While so engaged, and in a stooping position, a stone from the box fell upon him, a distance of 33 feet, striking him on the head, and killing him instantaneously. It is stated that the deceased had been repeatedly cautioned both about filling the box so full and also about working underneath while it was being hoisted. Deceased, who was 24 years of age, resided at Stanbury, and leaves a widow and two children.

Miscellaneous News.

EUROPEAN GAS COMPANY, LIMITED.

The Half-Yearly Extraordinary Meeting of the Shareholders of this Company was held at their Offices, No. 11, Austin Friars, London, on Wednesday, Feb. 19—W. WHITE, Esq., in the chair.

The SECRETARY (Mr. H. M'L. Backler) read the advertisement convening the meeting, and also the following report of the directors:—

Your directors have the pleasure to report that, notwithstanding the unsettled state of France, trade has continued active in the districts supplied with gas by your six establishments.

The company's operations have not, however, been conducted without considerable drawbacks, foremost amongst which must be mentioned the extraordinary price of coals.

You were informed in the last report, that your directors had succeeded, so far, in mitigating the effect, by timely contracts for both English and French descriptions.

As these agreements expire, higher terms are demanded, and the company are now induced to use French coals almost exclusively; but the cost of these is likewise increasing, though not in similar proportion to the rise in those shipped from England.

The advantages of this substitution are lower prices, and the satisfaction produced by encouraging a product of the country in which the company's business is carried on.

Coke has suffered materially in value, from the unseasonable weather which prevailed during the early part of the winter, and both wood and peat—used to a large extent, for fuel, in several towns supplied by the company—have not risen in price at the same rate as coals. They have been brought into sharp competition with coke in all localities to which they have access.

The deplorable results arising from inundations in various parts of Europe have been experienced, to some extent, by this company, more especially at Nantes, where they were unprecedented in importance, and where the part of the town in which the gas-works are situated remained some time under water—all the furnaces being extinguished, and many of the retorts submerged. Consequently the supply of gas had to be suspended during part of December.

Owing to the ability and energy of your local superintendent, it was possible to resume the lighting before Christmas, after an interval of eleven days, to the general satisfaction of the authorities and inhabitants.

Your plant has not suffered materially and the damage consists mainly in temporary loss of business.

Measures are being taken to raise the level of the retort-benches and other apparatus, as alterations and enlargements become necessary.

A new retort-house will be provided in the course of next summer.

At Caen, the reduction of price consented to last year, in consideration of an extension of the company's exclusive privilege, has already produced a considerable increase in the consumption of gas, now largely used for heating and culinary purposes.

A new purifying-house and extra purifiers are indispensable, together with various minor additions, required by the growing importance of this station.

The new gasholder at Amiens was finished in the autumn and has been in constant use for more than three months.

Several projects have been brought forward for improving the port of Boulogne, and carrying out building operations on a large scale. It is hardly probable that all these will be realized, but, however curtailed such of the schemes as take a practical form may be in execution, they cannot fail to have a favourable effect on your interests.

Out of £12,250, 5½ per cent. debentures, which came to maturity on the 1st of January last, £5300 were renewed at 5 per cent., and the balance paid off, according to notice

The accounts for the current financial year will not be made up until the 31st of March next, but your directors felt no hesitation in forwarding to every shareholder on the 31st of January a warrant for the usual interim dividend at the rate of 8 per cent. per annum.

The CHAIRMAN: Gentlemen, I am sure you regret as much as your directors do that, in the report which has just been read, we have not been able to adopt altogether the tone of congratulations we have been accustomed to adopt on former occasions. But there is also no doubt that all of you, before entering this room, were aware, either from the newspapers or by personal experience in your several localities, of the great rise which has taken place in the cost of fuel, and are, therefore, not surprised to hear us say that the chief difficulty we have had to encounter during the past half year has been the enormous advance in the cost of coal. Unfortunately, this is a matter in which we cannot help ourselves. All we can do is to bear the burden it imposes as cheerfully as possible, and meet the difficulty in the best way in our power. We certainly have to congratulate ourselves that our share of the burden, heavy though it has been, was not heavier than that of other companies, whether in England or abroad. In fact, I think it has fallen heavier upon many of the English companies than upon ourselves, because they are limited to particular localities from which to obtain their supply of coal, whereas we have it in our power to draw supplies from various quarters. You have heard from the report that the French coal we procure has continued to be of great assistance to us, and that we use it as largely as circumstances will admit. If we had not that resource, we might now be under the necessity of paying 22s. or 23s. per ton for a supply of English coal. The great increase in price of coal is something remarkably strange, and when I tell you that about two years ago we could obtain any quantity we required at 6s. 6d. per ton, you will readily understand how serious a consideration the present state of the market is to all gas companies. How long it will last it is impossible for me or any one else to tell, but you may be assured that we keep a very vigilant look-out, so that if there is the least chance of getting coals in any other direction, we shall be prepared to do the best we can to protect ourselves. With regard to coke, I may remark that when coke comes into competition with coal only, we can generally obtain a very satisfactory price for it—a price somewhat in proportion to the current price of coal—but when, as lately, we have wood and peat opposed to us, we are not fortunate enough to realize what we consider a fair price for this product. However, the inclement weather of the past fortnight or three weeks has been the means of helping us materially, so that our stocks are running off pretty fast; and I am inclined to think we shall not do so badly after all. I can assure you, gentlemen, that your directors spent a very anxious time during the inundations at Nantes. We did not know what might be the consequences, how much business we might lose, nor how great the damage that might be done to our works. But, after eleven days of suspense, during which we were kept in constant communication by telegraph (for the railway train and postal service was completely suspended) we received the very welcome intelligence that all the lighting was resumed, and that the works of the company were not materially damaged. I can but repeat the statement made to you in the report, that this early resumption of lighting was due to the energetic action of our excellent superintendent at that station. I may add that our officers abroad are thoroughly up to their work, and when any unforeseen difficulties do arise which require more than ordinary ability and prudence, they do generally master and overcome them to our entire satisfaction. We were for some days apprehensive that our works at Rouen would be placed in the same position as those at Nantes. The fact is that the water in the river rose to within 18 inches of our works, but even in the event of an inundation there, we should not have been exposed to so much difficulty as at Nantes, because there is another company in the town, the directors of which were handsome enough to say to us, "Gentlemen, if you are in any difficulty, only make your arrangements with us in time, and we will light your district." We felt greatly obliged to them for this act of politeness, and you may be sure we took care to thank them for the offer. Fortunately, however, we did not require their assistance. With regard to our general business, I am glad to say it is in a most satisfactory state. The high price of fuel has led to the utilization of gas for heating and other purposes, to an extent previously unknown. I am persuaded that as the great convenience of the substitution of gas for coals is beginning to be appreciated, the consumption will largely increase, and that, after the temporary depression from the rise in the price of coal has diminished, it will still leave us with a greatly augmented number of customers to use gas for cooking and other purposes. Perhaps, therefore, out of the passing evil from which we have been suffering, a substantial good will accrue to us. You will have seen by the report that a considerable portion of the 5½ per cent. debentures, which became due in January last, have been renewed at 5 per cent. I think under present circumstances, and looking at our affairs in every way, this must be satisfactory to all of you. It certainly shows that the public have confidence in the undertaking itself, and in its management. After all we have passed through during the last three years, the debenture holders feel that whenever difficulties arise, as they constantly do arise, we are always ready to put our shoulders to the wheel, and to encounter them to the utmost of our ability. This has given them confidence; and I think, looking to the high position we have occupied for so many years, we may fairly assert that there is nothing which has taken place lately to militate against the future maintenance of our prosperity. We, as your directors, are always ready and always at our posts; our officers also are always zealous and prepared for their duty; and, therefore, I think we may congratulate ourselves in the prospect of continued success. I move—"That the report now read be received and adopted."

Mr. FAWCETT seconded the motion, which was put, and carried unanimously.

There being no other business to transact, it was at once resolved to give a cordial vote of thanks to the chairman and directors for their able management of the business of the company.

The CHAIRMAN, in acknowledging the vote, said: Gentlemen, we thank you, as we have done on these occasions for many years past, for the confidence reposed in us, and for the kind expression of your satisfaction with our management. You may be sure, from what has been stated to-day, that in the past half year we have not reposed upon a bed of roses. We have had many anxieties to sustain, and the business of the company has required an additional amount of time and trouble; and, but for the great assistance we have received from all our officers, especially from our worthy secretary, we should have had a much more arduous task to perform. But whether our duties are light or arduous, we are always ready and willing to perform them, and to exert ourselves to the utmost of our ability for the good of the concern.

LIVERPOOL UNITED GASLIGHT COMPANY.

The Half-Yearly General Meeting of the Proprietors of this Company was held on the 18th inst., at the Offices, Duke Street—Mr. THOMAS EARLE, chairman of the Company, presiding.

The directors having caused to be prepared and submitted to them an estimate of the profits of the company for the half year ending the 31st of December last, in accordance with the company's Acts of Parliament, and having duly considered the same, recommended the proprietors to declare a dividend for the half year ending as above stated, of £5 on every £100 stock, and a dividend at the rate of £3 10s. for every £100 for a half year on the capital paid up in respect of the 7 per cent. shares. In order to maintain this rate of dividend, however, they said it would be necessary to trench on the reserve-fund to a considerable extent.

The CHAIRMAN, in moving the adoption of the report, said it would be satisfactory to the proprietors to learn that the directors were still able to pay the same dividend, in spite of the great difficulty they had experienced in getting coal and the increased price of labour, to meet which, to some extent, it had been found necessary to raise the price of gas, which he had no doubt was very generally anticipated. There would be a call of £5 upon the £25 shares on the 1st of July next, and this would leave another £5, which he did not know whether they would require or not.

Alderman MORRIS seconded the motion, which was agreed to.

The dividends recommended were then declared, after which Mr. J. A. D. Watts was elected one of the auditors in the place of the Rev. G. Sandbach, resigned.

A vote of thanks to the chairman terminated the proceedings.

WEYMOUTH GAS CONSUMERS COMPANY.

The Half-Yearly Meeting of this Company was held in the Council Chamber of the Guildhall, on Thursday, Feb. 13—the MAYOR (Mr. J. Robertson) in the chair.

The following report of the directors was presented:—

The directors, in again meeting the shareholders, regret that in consequence of the great advances made in the price, and the inferior quality of coal, they cannot, as on previous occasions, declare a dividend of 5 per cent. It will be observed the cost of this article is in excess of that of the corresponding period of last year by £1009 13s. 1½d. Notwithstanding the early closing movement and the operation of the new Licensing Bill, the gas-rental is but £29 19s. 9d. less than the corresponding half of last year. The balance available for dividend is £515 12s. 7d., and the directors recommend that a dividend at the rate of £3 per cent. per annum be declared, free of income-tax, which will absorb £450, the balance to be carried forward to the next half year. The auditor who retires by rotation is Mr. W. T. Hallett. The capital account showed a total receipt on shares (which are all paid up), £30,000; loans, £7500; balance, deducting expenditure, £10. On revenue accountthe total receipts were £3865 13s. 3d.; expenditure, £3353 0s. 8d.; balance available for dividend, £512 12s. 7d.

The CHAIRMAN, in moving the adoption of the report, said he thought he ought to state that the large sum for repairs, £318 18s., included the enlargement of the coal-shed and additional retorts. The old stores were only capable of containing 700 or 800 tons of coal, but now 1200 could be stored. The directors had not undertaken any expensive alterations, nor did they contemplate doing so; they simply wished to keep the works in a state of thorough efficiency, and he believed they were now in that condition. They would see that £150 had been obtained by the sale of stone, which, at one time, formed the base of the old chimney. Another item was the sale of some old iron, which brought in £115 12s. 1d. This iron had been accumulating for some time on the works, and consisted of old mains, services, and scraps. The directors exceedingly regretted they were not in a position to declare the usual dividend of 5 per cent., but circumstances had arisen which they could not foresee, and, if they had, they could not have made provision for the storeage of twelve months supply of coals. During the last half year the cost of fuel had been upwards of £1000 more than in the corresponding half, and, in addition to that, they had been obliged to use an extra quantity, because it was of an inferior description. Circumstances had occurred in the coal market over which they had no control. He might mention that those who were mainly interested in this company were principally tradesmen who, like himself, burnt a large quantity of gas, and, although coal was so much dearer, still the price of gas was the same as last year, but the question of raising the price of gas would come before the board of directors very shortly. He might tell the shareholders that throughout the country there was an agitation going on, and an endeavour was being made to obtain from Parliament additional powers to raise the price of gas. There was a Gas and Water Companies Association formed, which was about to introduce a bill into Parliament to enable companies to raise their price in accordance with the enhanced value of coal. This company subscribed to the association, and there was no doubt during the present session of Parliament this bill would be passed enabling them and other companies to raise their prices. If coal kept to its present value, or even if it was to get somewhat lower, the company must come to the town and ask for higher prices for the gas supplied. It had been the earnest wish both of himself and brother directors to do all in their power, by personal and constant attention, both at the works and the office, to advance the interests of this company.

Captain ROBENS seconded the motion.

Mr. THOMAS said they all knew how large a share of interest he had in the company, and the amount of labour he bestowed upon it; in fact, so deeply interested had he been in its success, that at his personal solicitation some of his relations subscribed to it, and that, too, when at a time it stood in jeopardy

for want of capital. He might, therefore, be allowed to say that he did not think the additional cost of coal during the last half year had brought this company to the utter and entire collapse which it was now in, and which, he thought, must be ascribed to other causes. If they looked at the debtor and creditor account they would find that, had it not been for the sale of some stone and old iron, they would only have had £247 to be divided amongst the shareholders. He maintained that the enhanced price of coal could not account for the existing state of things. He attributed their difficulties, in the first place, to his being removed from the chairmanship of the board; next, to the dispensing of the services of Mr. Penny as the company's consulting engineer; and thirdly, to the use of West of England inland instead of Newcastle coal. When Mr. Penny left them some engineers had said they should be happy to take the works off the hands of the company, and pay them 7½ per cent. at the consumers meter, and keep the works in good order.

Mr. ROBENS: We have had that and beyond it.

Mr. THOMAS said they had never paid their shareholders that dividend, at all events. He felt that he could not allow this statement of accounts to pass unchallenged without receiving some assurance that the board would have their accounts submitted to a competent person to decide upon the whole of the works; to see whether proper results had been arrived at from the coal consumed, and a proper amount expended in labour. He was sorry to have been compelled to make these remarks, but he did so as a large number of his personal friends became shareholders, receiving an assurance from him which would involve him in a loss of capital to a considerable amount. He did not think the works had been properly managed or controlled, or better results would have been arrived at.

Mr. J. J. ROLLS thought the directors were bound to rebut Mr. Thomas's remarks, and, if they could not, to offer some explanation.

Mr. J. E. ROBENS was exceedingly sorry Mr. Thomas had introduced this matter in the way he had. He thought those who were directors of the company, some of whom had passed the chair, were not very far inferior to Mr. Thomas, in being able to sustain and take care of the interests of the company. He did not think Mr. Thomas represented any greater interest in it than he did. Personally, and connected with his family, he held the largest amount of capital in the company, and therefore he felt himself equally bound to say that he had a great interest in the success of it. He did not know that when the company was formed there was an understanding Mr. Thomas should hold the perpetual office of chairman. If there was not an understanding that he was to be the perpetual chairman, he had not much to complain of. Was the mayor or any other director less qualified to fill the office than Mr. Thomas? The object of the directors had been that the difficulties of the company should be tided over, owing to the loss sustained through the increase in the price of coals, and that the shareholders should not be put to one single farthing expense, so far as they were concerned. He asked them to look at the condition of the company at the present time. Mr. Thomas had talked about its collapse. Why, it was ridiculous. Was the company responsible for the rise in the price of coal? Was not the present extraordinary high price of coal a sufficient reason to lead the shareholders to expect that the dividend would be less than it was last year? With respect to Mr. Penny, he (Mr. Robens) was not going to speak in his favour or against him. Mr. Penny led them to believe they could get the gas-works for £18,500, whereas they had to pay £26,500. During the time that gentleman was in office, of course he had to be paid, but the directors thought the time had come when they could do without him by their carefully watching the works, and thus keeping down the expenditure, and he was bound to say that had been done. Mr. Thomas had spoken about the necessity of having some engineer down to examine their affairs. The directors had been waiting for one, and a gentleman was invited who would tell them whether they had been going on right or wrong. They might suppose, from Mr. Thomas's remarks, that was a new thing to be carried out, whereas it had been decided some time since. If the shareholders thought, from Mr. Thomas's remarks, that the directors were persons who did not understand anything about their duties, they would soon have an opportunity of electing others, some of whom might be imbued with the peculiar faculties of Mr. Thomas. The company had spent £1000 additional during the last half year in coal. Supposing they had had that amount of money now, what then would have been their position? There were many gas companies who had not a penny to pay their shareholders, whilst they would have had 6 or 7 per cent.

The MAYOR said he quite endorsed what Mr. Thomas had said—that at the formation of the company he took a deep interest in it, and it was mainly through his exertions they got the gas-works into their own hands. At the same time he was bound to state that he did not think there was an understanding that Mr. Thomas should be the permanent chairman. He denied Mr. Thomas had taken more interest in the affairs of the company than many other of the directors had done. He (the mayor) had already pointed out how they had spent £1000 more in coal to obtain the requisite supply of gas, and if this had not been done, and if they had at the present moment the money invested in the bank which had been expended in coal, they would have been able to declare a dividend of 8 per cent. All he could say was that he should be quite willing—and he was sure he was speaking the sentiments of the whole of the directors—to resign their trust into other hands. They had never received a single farthing for their services; had given both time and attention to the interests of the company, and could not do more.

Mr. THOMAS said money had been laid out on the gas-works which had never yet returned a single farthing profit. He had been informed that there was a gas company in the West of England making about half the quantity of gas that was here manufactured, and it made £120 a year out of the ammoniacal liquor, but for which the Weymouth Company had never received a single penny. What he maintained was, that there were not men competent in the board of directors to say whether their works had been properly conducted or not. That was his reason for saying their accounts ought to be checked by a man of experience.

The MAYOR said he would appeal to the meeting whether, if the directors had had to declare a dividend of 8 per cent. that morning, they would not have received the congratulations of every one? There was no doubt of that, and it was entirely owing to the rise in the price of coal that they had not been able to do so.

After some further conversation, and inquiries respecting the sale of old iron and coal, to which the manager, Mr. Stone, replied, the motion for the adoption of the report was put, and carried.

The retiring auditor, Mr. Hallett, was reappointed, and a vote of thanks was given to the mayor for presiding, which terminated the proceedings.

NEWPORT (MONMOUTHSHIRE) GAS COMPANY.

The Half-Yearly Meeting of this Company was held at the Offices on the Works, on Monday, Feb. 10—THOMAS GRATREX, Esq., in the chair.

The SECRETARY (Mr. E. F. Marfleet) having read the notice convening the meeting, the following report was presented:—"The statement of accounts as audited for the half year ending Dec. 31, 1872, is forwarded herewith. The directors are enabled to recommend the payment from net revenue of the usual dividends, and that without having to increase the price of gas to consumers. The extensions alluded to in a former report are progressing. The engineer reports the works and mains to be in a satisfactory state."

The CHAIRMAN moved the adoption of the report, which was seconded by Mr. WILLIAMS, and carried.

The CHAIRMAN proposed that dividends at the rate of 5 per cent. on class A shares and 3¾ per cent. on class B, for the half year ending Dec. 31, 1872, be declared, payable on the 17th inst. Mr. FARR seconded the motion, which was carried.

The CHAIRMAN read a letter from Mr. Andrew Davis, chairman of Vipond and Co., Limited, asking the shareholders to take into consideration the great loss which the company is sustaining on the contract for supplying this company with coal, and to give some compensation to the company. The contract was made for three years, about half of which was unexpired. The directors felt that this appeal could only be dealt with by a general meeting of shareholders.

A general conversation ensued, and at the close thereof, Mr. J. BREWER proposed that a sum of £50 be awarded to Messrs. Vipond and Co. The motion was seconded by Mr. NEWMAN, and carried.

Mr. NEWMAN proposed a vote of thanks to the chairman and directors, which was seconded by Mr. WILLIAMS, and carried.

The CHAIRMAN acknowledged the vote, and said that it was his study and also that of the directors to do all they could for the welfare of the company. With reference to the late accident at the works, he (the chairman) was glad to state that the men had all recovered; their medical and other expenses had been paid for them, and the men had expressed their thanks for the attention shown to them.

This closed the proceedings.

YORK UNITED GASLIGHT COMPANY.

On Thursday, Feb. 7th, the Ordinary Half-Yearly Meeting of the Shareholders of this Company was held in the Merchants Hall—Alderman WEATHERLEY, the chairman of the board of directors, presiding.

The SECRETARY (Mr. J. Sellers) read the fifty-seventh half-yearly report, which was as follows:—

In presenting their report for the past half year, your directors trust that the accounts, already in the hands of the shareholders, will meet with their approval.

Financially, the results are highly satisfactory, for although, as your directors anticipated, there has been a considerable falling off in the receipts for gas, from the great reduction in price to 2s. 6d. per 1000 cubic feet, which took place a year ago, and although there has been a considerable increase in the cost of all material and labour in gas manufacture, the falling off in the receipts for gas has been more than recouped. In the first half of the past year, it will be remembered, the profit was scarcely sufficient for the dividend; but in the half year just ended the balance available for dividend exceeds the necessary amount by over £600.

These results arise mainly from two causes—first, from your directors having 2½ years ago secured a contract for the supply of coal at considerably less than present prices; and secondly, from the increased value of coke and other residuals, which especially has ruled during the past six months. From these causes, therefore, your directors regard the past year's working as somewhat exceptional.

But satisfactory as the results are to the shareholders, your directors feel that they must be equally so to the general public; for inasmuch as all surplus profit must now, in accordance with the company's Act, be exclusively applied to the reduction of the price of gas, the public, who are gas consumers, will easily perceive that the excess of profit referred to will merely be held in reserve to meet the increased cost of coal, which at an early date the company will have to pay, and so, to this extent, will lessen the advance in the price of gas which otherwise would have to be made.

Your directors have to report that although no special outlay has occurred during the half year, the efficiency of the works has been well maintained.

In the gas department the usual increase in consumption has been materially checked by the earlier closing of workshops and places of business. But as a set-off to this drawback, your directors are pleased to point to the growing popularity of gas for cooking and warming.

From the balance available for dividend your directors recommend that the usual distribution be made of 5s. per share upon the old shares, and 4s. per share upon the new shares, and that the same be paid on and after the 11th inst., free from income-tax.

From the financial statement, which had been published, it appeared that the stock on hand on the 1st of July last was of the value of £2464 13s. 10d.; fittings and fitters wages, £1229 18s. 2d.; coal and lime, £5128 16s. 11d.; retorts, ironwork, meters, lamps, wages, &c., £1533 16s. 3d.; direction, £300; salaries and stokers wages, £1506 11s. 6d.; rates, taxes, &c., £194 13s.; printing, advertising, stationery, &c., £49 13s. 10d.; law, £12 7s. 4d.; bankers charges, £36 10s. 6d.; sales returned, £67 5s. 7d.; discounts and abatements, £2 16s. 9d.; bad debts, £18 3s.; depreciation and contingent fund, £500; making a total of £14,045 11s. 8d. On the other side of the account it was stated that the sales of fittings had realized £1604 10s. 9d.; sales of gas, coke, &c., £13,169 2s. 3d.; goods and packages returned, £10 1s. 4d.; received on account of bad debts, £1 8s. 7d.; interest received from bankers, £52 13s. 5d.; stock on hand on the 31st of December last, £3597 11s. 10d.; making a total of £18,435 8s. 9d.; and leaving a balance in favour of the trade account of £5389 17s. 1d., and adding this sum to £12,924 14s. 3d., the balance in hand on the 1st of July last, produced a total of £18,314 11s. 4d. The sum of £4750 had been paid as dividend in August, and the balance now available for dividend and working capital was £13,564 11s. 4d.

The CHAIRMAN said that in moving the adoption of the report it was quite unnecessary for him to make any observations, inasmuch as the report itself contained the fullest explanation of all that had taken place with regard to the company's affairs during the past half year. They had not made so much profit as usual by the sale of gas, and this was a thing to be expected after the reduction of gas to 2s. 6d. per 1000 feet, but they had done well in the sale of coke and the residuum. What would be their position in the next half year it was difficult in these times to say. The present contract as to the supply of coal would in a short time expire, and the directors would then have to take into consideration the upward tendency in the price of coal, and also the advance in the rates paid for labour. With these matters, which would so soon have to come before the directors, they would have to deal, and he could only express a hope that they might, with economic management, by carrying out improvements in the methods of producing gas, and with a steady increase in the consumption, not be compelled after all to raise the price of gas. The directors, however, had a fear and doubt upon this point, and it might happen that the price would have to be raised during the next half year, or it might be previous to the end of the present half year. This was an important question, and could not now be dealt with. The shareholders might safely rely upon the directors taking all these subjects into their most serious consideration, as it was their earnest desire to do everything in their power to promote the prosperity of the company. With these remarks he had pleasure in moving the adoption of the report.

The VICE-CHAIRMAN (Mr. J. F. Taylor) seconded the motion, and it was agreed to unanimously.

The CHAIRMAN then formally moved the dividend resolution, as stated in the report.

Mr. TAYLOR seconded the resolution, and it was agreed to unanimously.

Mr. HOLTBY said the city council met on Monday last, and he found from a short paragraph in the Leeds papers that a deputation had been appointed to attend some large meeting in London which was shortly to be held in reference to the Municipal Borough Funds Bill, which was to come under the attention of Parliament. It was the last part of the paragraph which drew his particular attention to the matter, as it stated that Mr. Alderman Walker and the town-clerk were to form the deputation, and that it had been agreed it should be an instruction to such deputation to seek improvements in the bill by the amendment of the clauses affecting the voting of the council and the ratification of such voting, and also the clauses relating to the gas and water companies. He wished to know whether this was to be an attempt seriously affecting the independence of gas and water companies generally, and compelling them to give up their property at the will and pleasure of corporate bodies. As the chairman was a member of the council, and was no doubt present at the meeting, he had to ask him if he could give any explanation upon the subject to which he had just referred.

The CHAIRMAN stated that the resolution was adopted and a deputation

appointed in consequence of a great meeting which had been held in Manchester, at which representatives from various corporate cities and towns were present, in reference to making amendments in Mr. Leman's bill about municipal corporations. It was sought to extend the provisions of that bill, which did not give sufficient powers to corporations in dealing with their pounds, shillings, and pence; and also to improve the voting by councils as stated in the resolution. At present shareholders in gas and water companies, who were members of the corporation, were prevented from either speaking or voting when any question arose as to purchasing or dealing with the property of such companies. It was sought, therefore, to get clauses inserted in the bill giving shareholders the opportunity of voting in the council upon these questions. To shareholders, therefore, this would be a very important matter, and as in York there were twelve such shareholders in the council, it would be a great advantage if they could make observations and vote when questions affecting their property were concerned. With respect to the meeting in London about to take place, he did not think that they had anything to fear, and he could assure the shareholders that when the time arrived the directors would be on the look-out to see a report of the meeting, and use every means in their power to protect the interests of the company should they be threatened.

Mr. GROVES inquired whether it was for the benefit of the company that members of the council should be made directors. He considered it very bad policy indeed to appoint directors who belonged to the corporation. In such case they had their mouths closed as regarded the welfare of the company, and when any vital question came forward they had to sit as mere dummies.

The CHAIRMAN, in answer, said that he had every confidence in the corporation, and he was sure that they would not at any time seek to deprive the shareholders of that or any other company of their property, or to forcibly take it from them without giving a fair and good remunerative price for it. The question, however, at present was very far distant, and it was one that ought not to have been broached at that meeting, there being nothing either in or out of doors calling for any remark. He had every confidence in the members of the council who were not shareholders in the company acting honourably and honestly in the matter, if it should ever arise.

Mr. FOSTER said it was not directors only but also shareholders who could not vote or take part in discussion in the council. The company could not prevent any member of the council purchasing their shares.

Mr. HOLTBY moved that the best thanks of the shareholders were due to the chairman and board of directors for their efficient management of the business of the company during the past half year.

Mr. GROVES seconded the resolution, and it was agreed to unanimously.

The CHAIRMAN acknowledged the compliment, and the meeting then separated.

BERLIN WATER-WORKS COMPANY, LIMITED.

The Twentieth Annual General Meeting of this Company was held at the London Tavern, on Friday, Feb. 14—JOHN COYSGARNE SIM, Esq., in the chair.

The SECRETARY (Mr. Fesch) read the notice convening the meeting, and the following report was presented:—

The directors have pleasure in submitting to the shareholders the annexed accounts of the company for the past half year, which show that the temporary check to the increase in the revenue, occasioned by the extended use of meters, has now been overcome.

The increase of the water-rates, compared with the corresponding half year in 1871, amounts to £5637 7s. 7d., which has been earned by an increased expenditure of only £1461 13s. 9d. The net income of the company for the half year is £39,834 17s. 11d., and for the half year ending June 30, 1872, it was £37,288 19s. 8d., making the earnings for the whole of the year 1872, £77,123 17s. 7d. Ten per cent. on the capital of the company amounts to £60,000, leaving the sum of £17,123 17s. 7d., half of which belongs to the shareholders, and the remaining half is to be added to the fund set aside for the construction of sewers in accordance with the terms of the concession.

On reference to the general revenue account, it will be seen that after paying an interim dividend at the rate of 10 per cent. per annum for the first half of the year 1872, there remained a surplus of £8351 19s. 3d. To this must be added the earnings of the past half year £39,834 17s. 11d., making together £48,186 17s. 2d. From this sum the company will have to credit the fund for constructing sewers £8561 18s. 9d., thus leaving a net balance of £39,624 18s. 5d. Out of this sum the directors recommend a dividend shall be declared at the rate of 12½ per cent. per annum, which will absorb £37,500, leaving a balance to be carried forward of £2124 18s. 5d.

The retiring directors, John Coysgarne Sim, Esq., and Henry Goschen, Esq., and the retiring auditor, John Weise, Esq., being eligible, offer themselves for re-election.

The engineer and manager's report, and the financial statement duly audited, are annexed.

To the Board of Directors.

Berlin, Jan. 21, 1873.

Gentlemen,—The scarcity of dwellings, and consequent great increase of the rents, which rendered it advantageous to pass from the system of supply *à discrétion* to that of supply through water-meter, still continues, and is so general in Berlin that it was impossible to make the transition during the first half of the year. Although during the second half of the year 702 water-meters were built in, the change cannot yet be looked upon as complete.

The efforts of the building societies and of the builders have scarce sufficed to meet the current demand for dwellings, but they have caused an unusual accession of customers for water.

In the course of the half year which closed on the 31st of December last, 344 additional blocks of buildings were connected to your pipe system, making for the entire year 609, a number only exceeded in the years 1863-64-65, when the pipe system was extended into the Köpnicker Feld and the district south of the Potsdamer Bridge, and when the building speculation was at its height.

There are now 7524 of the 12,000 blocks of buildings estimated as lying within the area of your pipe system supplied with water from it, and of these, 3725 receive water through a water meter.

To this very general introduction of the meter it is due, that the per centage of increase in the quantity of water supplied has been somewhat less than the per centage of increase in the number of consumers.

The enormous public and private works of construction being carried out generally in Prussia, and more especially in Berlin, have so acted on the markets for labour and materials, that not only have prices been very largely enhanced, but it has been almost impossible at any price to obtain either materials or labour.

In addition to this, it has become necessary to renew the boilers of the original pumping establishment, and three of the old boilers have been replaced by new ones during the last half year.

The strikes in the coal districts in England, and the scarcity of water in the inland navigations, excluded English coal from the Berlin market, causing thus the prices for the native coal to range high.

The quantity of water consumed was 10·7 per cent. more than in the corresponding half of the year 1871.

These are the causes why the working expenses are so much in excess of those for the second half of 1871.

The construction of three additional filter beds, having a total sand surface of 9000 square mètres, vaulted over and covered with earth, so that the cleansing can take place in winter, was ordered on the 12th of July last, and commenced on the 9th of September. The difficulties enumerated above prevented any great progress before the close of the building season, but materials have been collected, and every effort will be made to complete them as soon as practicable.

Your works have been maintained, and are now in an efficient condition.

I beg to forward the balance-sheet and the accounts for the past half year.

(Signed) HENRY GILL, C.E., Engineer and Manager.

The CHAIRMAN: Gentlemen, twenty years ago next month it was determined by his late revered Majesty the King of Prussia that his great city of Berlin should have a supply of flowing water. He had very able ministers at that time, who were much interested in the prosperity of the city, and he advised with them; he also communicated with the municipality of Berlin; but he determined to leave this enterprise to English capitalists and English engineering. On that account this company was formed, and I say it with some feeling, it is a great happiness that for 20 years two of us who assisted at the inauguration of the company have been spared to come before you to-day with the most satisfactory report we have ever been able to present. I will not enter into the details of the report, for I know the confidence that our shareholders have always placed in the directors, and that when we meet here it is more like an assemblage of persons equally interested in the undertaking, prepared to talk over together anything which may not be noticed in the formal document submitted by us. It has always been our practice, and I hope it will continue to be so in the future, to feel that we are acting entirely in concert with our esteemed shareholders. Those who lived in the early days of our enterprise will remember that no dividend was earned by us from 1856 to 1859, although all our expenses were carefully cut down. In 1860 we paid our first dividend of 1 per cent., which was eked out of our surplus earnings. From that commencement there has been a gradual and progressive rise each year, which has culminated on this occasion by our being in a position to pay 12½ per cent. for the past six months, making for the whole year 1872 a dividend at the rate of 11¼ per cent. We had a gross revenue last year of £99,900, and you will see from the accounts that £77,000 will about represent our net earnings; so that our expenditure was £23,000. I think we have now brought our expenditure down as low as we can hope to succeed in doing, for I cannot conceal from you the fact that the increased cost of labour, and coal and other materials, with the addition made to the salary of every official in our employment, makes a considerable difference in our annual outlay. I may just mention incidentally that the quantity of water pumped to our customers during the last year for general supply amounted to 3 milliards 159 gallons, or, in other words, to 31,059 million gallons. I think I am right in saying that this is an advance since 1868 of 600 million gallons, and that more than half of this quantity—probably three-fifths—was supplied by meter to the advantage of the company. I now move—"That the report of the directors be received and adopted."

Mr. PICKERSGILL CUNCLIFFE seconded the motion. In doing so he said the company had only added £99 10s. 10d. to the capital expended in the past half year, but this expenditure did not show what had been done, because the directors had arranged with a great number of their new customers, who were not within their pipe system, that if they wanted the water they should pay the cost of laying down the mains, and during the past half year there had actually been added to the pipe system of the company a length of upwards of four English miles. All this would come into valuation when the time arrived for the municipality to assume the works. He said the municipality, because the Government had now transferred the redemption of the company to the municipality of Berlin, and if they chose to buy up the company at the end of eight years, they would have to pay for this additional mileage of pipes. The increase in services during the half year was 869; for the corresponding half of 1871 they were only 191. The expenditure on revenue account for the last half year, as compared with the corresponding period of 1871, showed an increase of £1461 13s.; but against that increase there was an increase of £5637 in the water-rates, so that it was not to be regretted that the expenditure had been made. Some of the boilers had been in existence 18 years, and, as a matter of course, were the worse for wear. The directors determined that the works should be all in good order, and therefore replaced these old boilers for new ones. They were constructing new filter-beds, and had great difficulty in keeping the men at work, and had, consequently, to pay high prices for labour, the rate of wages for the working staff had been increased, and the salaries of the clerks had been raised 5 per cent., an increase which was well deserved.

Mr. GRAY asked whether the outlay in replacing the old boilers had been paid for out of capital.

Mr. PICKERSGILL CUNCLIFFE said it had not. The directors were most particular in all cases of repair to pay the cost out of revenue.

A SHAREHOLDER remarked that in the last general balance-sheet there was an item of "Prussian Government Suspense Account;" it now appeared as "Berlin Sewers Construction Suspense Account." He asked for an explanation.

Mr. PICKERSGILL CUNLIFFE replied that by the concession the profits of the undertaking beyond 10 per cent. were to be equally divided between the Government and the company, and there was a proviso that the Government moiety should be used in the construction of sewers. The amount now standing to the sewers construction suspense account was retained until the directors were assured that it would be devoted to the purpose for which it was originally intended. In reply to further questions, he stated that correspondence had taken place during the half year on the subject of the ultimate transfer of the undertaking to the municipality, but no decision had been arrived at. The shareholders would be called together and informed when anything definite had been settled. The new filter-beds would be paid for out of capital; the cost would be about £30,000, and the amount might be provided by the issue of new shares.

The motion was then put, and carried unanimously.

On the motion of the CHAIRMAN, seconded by Mr. GOSCHEN, it was resolved—"That a dividend for the half year ending Dec. 31 last be declared, at the rate of 12½ per cent., free of income-tax, payable on and after the 19th inst. to the shareholders registered on the 4th inst."

The retiring directors, Messrs. Sim and Goschen, and the retiring auditor, Mr. Weise, were re-elected.

On the motion of Mr. CURTIS, seconded by the Rev. J. BROWN, it was resolved to add £1000 a year to the remuneration of the directors.

The CHAIRMAN acknowledged the obligations of the board for this liberal recognition of their services.

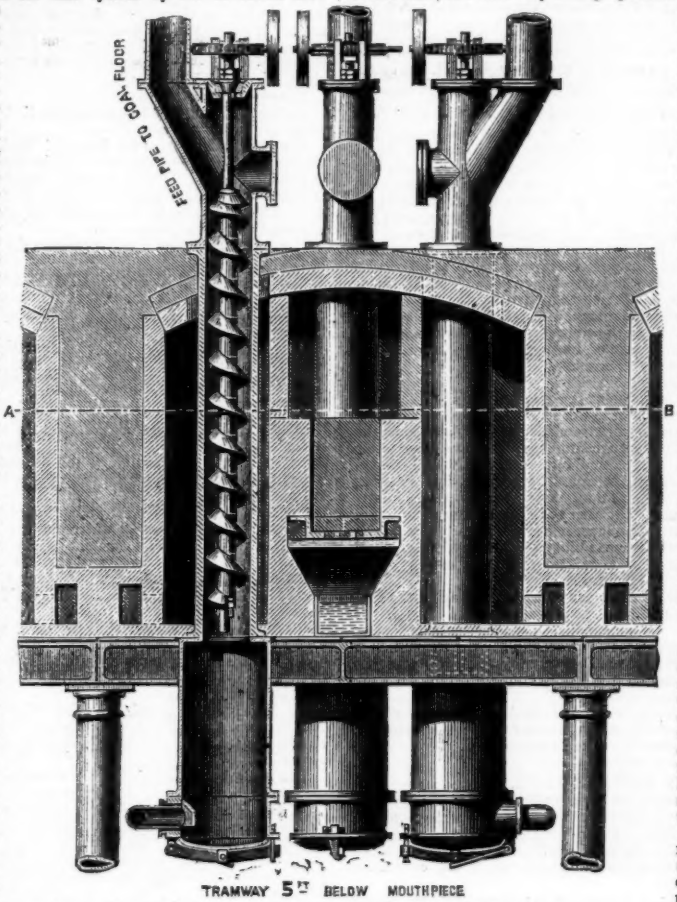
The proceedings closed with a vote of thanks to the directors and the chairman.

FYLDE WATER-WORKS COMPANY.—The half-yearly general meeting of the shareholders in this company was held on the 13th inst., at the offices in Kirkham. The report of the directors, which was adopted, stated that up to Dec. 31, 1872, the amount expended on capital account was £93,576 15s. 7d. The amount received for water during the past half year was £3882 6s. 10d., less interest on loans and the amount of working expenses, leaving a net balance of £2625. The directors recommended a dividend after the rate of 6 per cent. per annum on th eoriginal subscribed capital of the company (£60,000), and also on the new issue of £15,000, free from income-tax. This would leave a balance of £375 to be carried to the credit of the reserved fund. The number of houses supplied with water is 3957, being an increase of 74 during the past half year.

FAVERSHAM WATER COMPANY.—The annual meeting of this company took place on the 10th inst.—Mr. Murton in the chair. The report stated that 659 houses were now supplied with water, 28 having been added during the past year. The whole of the loan authorized at the general meeting of the company on Oct. 1 last, amounting to £1000, has been raised, and £525 had been already paid towards the cost of erecting the windmill and making the new well and pumps. The directors recommended the declaration of a dividend of 5 per cent., payable in respect of the amounts paid on the preference shares, and of 4 per cent. payable in respect of the original shares, for the year ending Dec. 31, 1872, and to be paid without deduction for income-tax. It appeared by the statements of accounts that on the capital account £8592 had been received and £8132 1s. 5d. expended, leaving a balance at the bankers to the credit of the company of £459 18s. 7d. The revenue of the year had amounted to £736 18s. 3s. (this included £25 4s., the value of coal and coke in stock), and the payments to £375 4s. 1d., leaving a balance on the year of £361 14s. 2d. The cash balance account showed that the company had £771 2s. 5d. at the bankers and £9 6s. 3d. in the hands of the manager. The report was adopted.

THE GAS GENERATOR.

We have on several occasions inserted communications in reference to one feature of the invention patented in 1871, by Messrs. Porter and Lane, of Birchin Lane, under the title of "Improvements in the manufacture of gas for illumination, and in the apparatus connected therewith." The principle of the invention, so far as the apparatus is concerned, is the continuous passage of a thin layer of coal through a vertical retort, in close contact with the whole of the inner surface thereof, leaving the interior space free for the evolution and passage of the gas. By this means the gas is quickly extracted, and passes off freely, while the exhausted coke is rapidly, and with a small amount of labour, removed. The advantages claimed for this system by the inventors are: 1. That the coal is presented to the heat, according to the highest authorities, in the most approved manner for ensuring perfect distillation. 2. That the temperature of the retorts is never reduced by any admission of cold air. 3. That the usual injurious effect of carbonaceous deposit in the retorts can be entirely avoided. 4. That the quality of gas is always equal and uniform throughout the working. 5. That the charges, so fast as the gas is perfectly distilled, are removed from the action of the heat, and the formation of bisulphide of carbon is almost entirely prevented. 6. That the severity hitherto of charging and discharging the retorts is entirely dispensed with. 7. That no skilled labour is requisite in feeding and emptying the retorts. 8. That the arrangements of the furnace for heating the retorts are very effective and economical in fuel, labour, and repairs; and, in addition to these and other advantages, the yield of gas per ton of coal over the ordinary system is fully 2000 cubic feet of equal illuminating power.



As to this first part of the improvements, it will be seen, on reference to the accompanying illustrations, that the retort is "set" vertically with a screw hanging upon a round spindle within it, which may be turned continuously by machinery, or at suitable intervals by easy manual labour. The screw is made up of a series of separate sections clutching each other. The differential feed-screw at the top is fitted on a square on the spindle, and thereby caused to turn with it, and by means of the clutches the entire screw is revolved without any twist or strain whatever upon the heated portion of the spindle. The feed-screw is made to deliver a determined and continuous quantity of coal from the feed-pipe on to the screw below, which is made with a sloping blade, in order to suspend the charge in a thin spiral stream against the heated sides of the retort. A rapid distillation is thus produced, and ample space is provided for the swelling of the coal and evolution of the gas during its continuous passage down the retort as the screw revolves.

The red hot coke falls from the screw into the coke-box below, and, by its instant removal from the action of the heat in the retorts, so soon as all the gas has been distilled, the after cost of purification is thereby very greatly reduced.

The coke-box is discharged and closed in a few seconds by means of Messrs. Morton and Holman's patent lid, without any diminution whatever in the temperature of the retort or stoppage of machinery.

According to the speed at which the screw is turned, and with "good heats," so the quantity and quality of the gas may be determined at pleasure.

The second feature of interest in connexion with these improvements relates to the construction of the furnace, which improvements appear to be applicable as well for heating ordinary horizontal retorts as the patent gas generators. Of course the objects to be aimed at in the construction of a furnace are to ensure as perfect a combustion as possible, without the formation of clinker on the walls, or destruction of the arch.

Perfect combustion can only be produced by passing a certain quantity of air into the furnace above the burning fuel, to mingle with the furnace gases whilst exposed to the direct action of the fire.

In daily practice we find little or no air admitted above the burning fuel; and, therefore, for want of more free oxygen, the gases pass away chiefly in the form of carbonic oxide, and an immense loss of heat is sustained.

If an excess of air be allowed to pass into the furnace a chilling effect is produced. A tremendous blast is usually found rushing up incessantly between the furnace walls and the fuel, diminishing the heat already developed, and passing out through the nozzles with a cutting and destructive effect upon the retorts. To prevent unnecessary labour in cleaning the furnace, whatever clinker is formed should be capable of easy removal without any destruction whatever of the furnace walls. It is customary to find one mass of clinker, which it is impossible to remove without a considerable amount of labour of a most severe kind, and with very damaging effects to the brickwork, and with injurious reduction in the temperature of the furnace and of the retorts.

The accompanying illustrations show the mode by which, in Porter and Lane's patent furnace, it is proposed to overcome this difficulty.

The iron dead surface frames placed round the furnace at a level with the fire-bars compel the whole of the draught from the ash-pit to pass up through the body of the fuel.

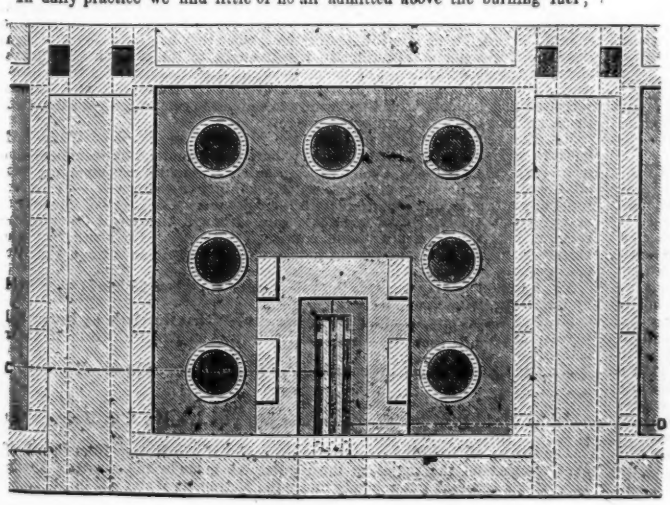
The clinker, which is very much reduced, gathers on the iron plates, and is easily removed without the aid of the clinker-bar, and with no damage whatever to the brickwork.

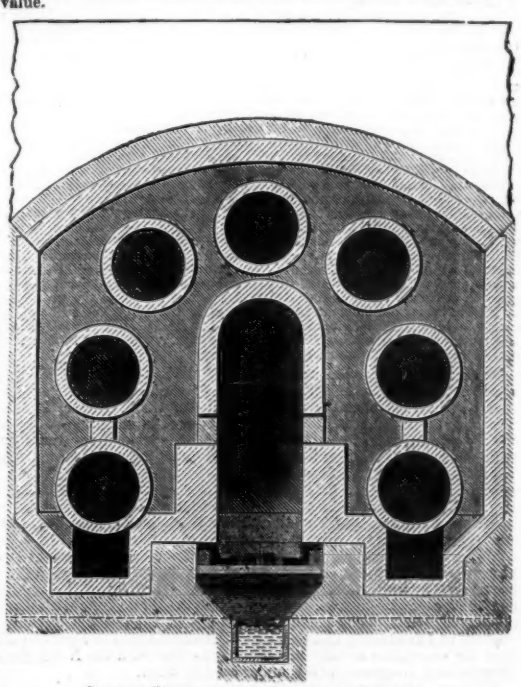
A suitable quantity of oxygen is admitted through a series of ½-inch gas-tubes built in the front wall, a little distance below the crown of the elevated arch; and the arch being raised above the level of the exit-flues, the gases from the fuel, and the free oxygen passing through the tubes, are caused to unite and be retained for a period of time subject to the action of the fire, whereby, the inventors state, perfect combustion is ensured.

The total results are almost perfect combustion, very moderate draughts, little wear and tear of the furnace, no cutting of the retort, and very light labour, with a saving of more than 25 per cent. in fuel. A complete through bench is now in course of erection on this system at the Phœnix Works.

The apparatus is now being tried at the works of The Gaslight and Coke Company, Horseferry Road, and at those of the South Metropolitan Gas Company, Old Kent Road, London. At Tenby Works the preliminary trials are said to have been so encouraging that a bench of six retorts, worked by steam machinery, has been erected on a practical scale, and will very shortly be in full operation. We await the results with much interest. We understand arrangements are being made by the lessee (Mr. G. W. Stevenson) for such an extension as will enable him to supply the whole of the town with gas manufactured on this system.

Since the charge descends entirely by gravitation, it would appear that no injurious strain can come upon the heated spindle, and if the coke produced, which is certainly abundant in quantity, and said to be of good heat-giving quality, can be made hard enough to bear stacking and carriage, which is being attempted with clay retorts at the South Metropolitan Gas-Works, by turning the screw by hand at intervals sufficient to allow the coke a period of repose in the retort—then the invention may be regarded as one of great importance and value.





PATENT FURNACE FOR ORDINARY RETORTS.

LEEDS (CORPORATION) GAS SUPPLY.

The Quarterly Meeting of the Leeds Town Council was held on the 12th inst.—the MAYOR (Alderman Oxley) in the chair.

It was reported that the gas accounts, a summary of which appeared in our last number, had been audited up to the close of the year ending June 30, 1872, and showed that the net profits, after payment of interest and working expenses, amounted to £12,758, whilst the profits upon the water-works for the year ending the 31st of August amounted to £7142.

Alderman LUCCOCK said he thought the 28th clause of the Gas Act regulating the appropriation of the gas profits was exceedingly unjust. It was not equitable that the amount realized by the corporation from the manufacture and sale of gas should be placed to the credit of the borough fund. It ought rather to have been placed to the credit of the gas account, and used either for any needful extension of the works or in a reduction of the price of gas. The committee were now obliged to expend £20,000 for a new gasholder. The consequence of the present system was that though the committee had placed no less than £26,000 of the profits to the credit of the borough fund during the last two years, and had thus saved that amount to those who paid the borough rate, the committee were obliged actually to borrow money for the expenditure now necessary, and charge the interest for the borrowed money against the gas. They were at present by law prohibited from increasing the price of gas beyond 3s. 9d. per 1000 cubic feet. If, however, it were possible to increase the price when a deficiency occurred (instead of drawing upon the borough fund), as well as of making a reduction when possible out of the profits, large consumers would probably be more careful of the quantity they used. He moved—"That the attention of the Parliamentary, Water-Works, and Gas Committees be called to the clause relating to the appropriation of profits arising from gas and water in their respective Acts of Parliament, so as to cause the same to be appropriated in a more equitable manner."

Mr. BRAMHAM seconded the motion.

Alderman BARRAN expressed his surprise at the resolution and arguments put forward by Alderman Luccock. When the Corporation of Leeds undertook any commercial enterprise, the profits realized from it should be devoted to the whole of the borough, since it was the borough fund that would be responsible for any loss that might accrue in exceptional circumstances. The sum of £20,000 required for the new gasholder could be got from the capital account, and interest upon it would doubtless be more than paid by the additional profits realized by its use. This was a question between the gas or water consumers and the whole borough. Although himself a large consumer of gas, he felt that, so long as the whole borough took the responsibility of the very large capital raised for the gas and water works, the profits arising from these sources ought to go to the reduction generally of the borough rates.

Alderman GALLSWORTHY said that if a company had been working the gas-works the management would have cost more than under a committee of the council.

Mr. JACKSON supported Alderman Luccock's proposition, as conveying in it the very essence of justice. He could not see that any injustice would accrue by the adoption of the course suggested.

The resolution was carried by a small majority.

The TOWN-CLERK reported that the Gas Committee had resolved that all discount on gas accounts under £400 be reduced to one-half the present rate, and that 15 per cent. be allowed on accounts exceeding that amount.

NOTTINGHAM TOWN COUNCIL.

OPPOSITION TO THE GAS-WORKS CLAUSES AMENDMENT BILL.

At the Quarterly Meeting of the Council, on the 3rd inst., a report was presented from the Parliamentary Bills Committee, setting out in detail the provisions of the bill to amend the Gas-Works Clauses' Acts, 1847 and 1871, proposed to be introduced into the present session of Parliament, upon which the committee submit—

That this bill ought not to be allowed by Parliament to be proceeded with for the following reasons:—It is brought in as a private bill—but it is a bill to amend public Acts, and it is proposed to have the operation of a public Act, and to affect all gas companies and their consumers in all places. The Gas Clauses Acts contain no provisions as to maximum rates of charge for gas, nor as to the minimum illuminating power. Such provisions are only contained in the local Acts of the gas companies; so that the matters especially proposed by this bill to be altered are not contained in the Acts which this bill proposes to alter. The present bill introduces an entirely new principle, by enabling all gas companies to raise their prices until they get their maximum dividend. This is in direct violation of the terms on which Parliament granted them, in effect, the monopoly of supply, and is seeking to do this by a bill having a retrospective operation. These private Acts, where they contain maximum rates of charge and minimum amounts of illuminating power, are often the result of compromise and arrangement between the companies and their consumers, and are bargains which ought not to be broken. All this is proposed to be done by the mere order of commissioners, without any appeal and without their being confirmed by Parliament. The inability of a gas company to pay its maximum rates of dividend may arise from past extravagance or mismanagement, or from want of demand, or the discovery of some other illuminating power, and yet the proposed bill would protect the companies from the natural and inevitable consequence of such matters, and would also take away the inducement to wise and economical management. Your committee cannot overlook the fact that the proposed bill seeks to establish a fresh and extensive system of gas authority throughout this country, and to institute inquiries over which the consumers will have no real control, although their interests will be seriously affected by them. Your committee cannot but contrast this bill with the present bill of the Nottingham Gas Company, by which they seek for an increased capital of £400,000, and for a rate of dividend thereon of 7 per cent., nor should it be overlooked that the effect of this bill, if it were passed as it now is framed, might ultimately be to destroy the compact under which the rate of dividend of the Nottingham Gas Company is regulated, and to give that company a much larger dividend than they are entitled to, and to raise the price of gas until that enhanced dividend is obtained, and to guarantee such dividend in perpetuity out of the pockets of the consumers of gas. Your committee recommend that the council do oppose the proceedings with the said Gas Clauses Amendment Bill, and do refer the conduct of such opposition to the committee appointed in reference to the bill deposited in Parliament by the Nottingham Gaslight and Coke Company, and that a petition be presented by this corporation in opposition to such Gas Clauses Bill.

Mr. BARBER, in moving the adoption of the report, said the bill was a bill got up by gas companies, and the effect of it, if carried, would be most highly prejudicial to all consumers of gas in all parts of the kingdom. If the promoters of it had only asked that they might have power in certain cases, by reference to the Board of Trade, to increase the maximum price, there would have been a little more reasonableness in it. None of them wished gas companies to make gas for consumers at a loss to themselves, but they not only asked to have their maximum price raised, but in the same bill they proposed to ask Parliament for power to raise their dividends. Instead of any profit there might be going to the town, the commissioners might allow the companies to charge 10 per cent., and this would press very hardly, being almost equivalent in some cases to doubling the price of the gas. It was true the corporation would be entitled to be represented before the commissioners, but they had no access to the company's books, and as they could gather no accurate data from the formal accounts deposited with the clerk of the peace, they would go before the commissioners almost powerless. The committee considered it desirable the bill should be opposed in Parliament, and he moved, therefore, that the report be adopted, and that the committee already in existence to deal with the Nottingham Gas Bill be appointed to oppose the bill under consideration.

Alderman HOWITT seconded the motion, which was put and carried.

METROPOLIS GAS SUPPLY.

COURT OF COMMON COUNCIL.

At the Meeting of the City Corporation, on Thursday, Feb. 13—the LORD MAYOR in the chair,

The Gas and Water Committee brought up a report on the reference with regard to The Gaslight and Coke Company Bill and the Imperial Gaslight and Coke Company Bill. They stated that the first-named bill contained, amongst other provisions, a clause for the formation of a reserve-fund to make up the dividend to 10 per cent. in any year in which it might otherwise fall below that amount. They asked for authority to watch the progress of the bill, and see that other objectionable clauses were not inserted. The object of the second bill, they said, was to extend the time for the amalgamation of gas companies beyond the period fixed by the Gas Act of 1868. They did not see any objection to this bill as it now stood, but they recommended that they should be empowered to watch its progress, and see that objectionable clauses were not introduced.

The report was adopted.

On the motion of Mr. BONTEMS, Mr. E. D. Rogers and Mr. H. A. Isaacs were added to the committee.

A letter was read from the Board of Trade, stating that they had received an application from The Gaslight and Coke Company, under section 57 of the City of London Gas Act, 1868, to appoint commissioners for the purpose of revising the scale of illuminating power and price of the gas supplied by that company. A further letter from the board was read, stating that they had appointed commissioners for such purpose.

The communications were referred to the Gas and Water Committee.

METROPOLIS WATER SUPPLY.

METROPOLITAN BOARD OF WORKS.

At the Meeting of the Board on Friday, Feb. 14—Colonel HOGG, M.P., in the chair,

The Works Committee reported that they had had under consideration a notice from the Kent Water-Works Company of their intention of giving a constant supply of water on and after the 1st of June in such parts of St. Mary, Rotherhithe, St. Paul, Deptford, and St. Nicholas, Deptford, as are bounded on the north and east by the river Thames, on the west by the Surrey Commercial Docks and Canal, and on the south by Evelyn Street, and Princes Street, Deptford, and the Foreign Cattle Market. They recommended that no steps be taken in opposition to the scheme, but that the board do watch the company's proceedings, with a view, as far as possible, to protect the interests of the consumers.

Mr. NEWTON, in moving the adoption of the report, said it was only a small portion of the district below water-mark, with reference to which the company had given notice to give a constant supply, and, therefore, it would be possible for them to do this without any expense. The committee recommended the board not to offer any objection, although it was a very partial and incomplete thing; but they thought the Board should watch the company's proceedings with a view to protect the interests of the consumers. It was possible the board might at some future time compel this company to give a constant supply to the other parts of the district.

Sir WILLIAM CODRINGTON inquired whether any estimate had been formed of the expense this would entail on the householders. He thought that was the most important thing.

Mr. NEWTON said he might explain that that part of the report recommending that the board watch the company's proceedings was proposed with a view to seeing whether they could do anything to mitigate the extreme cost of the alterations.

The report was adopted.

ISLINGTON VESTRY.

At the Meeting of this Vestry on Friday, Feb. 14—Mr. KING in the chair,

The General Purposes Committee reported that they had considered a communication from the Hackney Board of Works, requesting this vestry to co-operate in applying to the Court of Chancery for an injunction to restrain the New River Company from withholding a supply of water for the purposes of street watering (except at the rate of 1s. per 1000 gallons), and the opinion of counsel taken by that board thereon, and they are of opinion that it is unnecessary for this vestry to co-operate in such application.

Mr. REDDISH, in moving the adoption of the report, said he did not admire the spirit of the objections stated in the letter referred to the committee, and they were of opinion that Hackney was mistaken as to the authority given by Act of Parliament, and it would not, therefore, be wise in the vestry to interfere.

Mr. VINCENT seconded the motion.

The VESTRY-CLERK, in answer to Mr. Price, said he was informed that none of the other parishes had joined Hackney.

Mr. PRICE observed that the question before them was whether the New River Company were charging more than they ought to do, and if so, then they should join in putting down a monopoly. He moved, as an amendment, that the report be referred back to the committee, and that the Hackney Board be requested to inform the vestry what steps they had taken up to the present time; and further, that the General Purposes Committee inform the vestry the proper price of water for street watering.

Mr. DENNIS asked what Mr. Reddish meant by saying that the Hackney Board was mistaken.

Mr. REDDISH replied that it was a question if the company were bound to supply water for street watering at all.

Mr. STONELAKE seconded the amendment.

Mr. CUFFLIN felt it was time that something should be done when the charges to private consumers had been raised 100 per cent.; but he thought parishes should not be left to fight out these questions, when they had in the Metropolitan Board of Works a central authority which ought to interfere in all matters affecting the general interest of the metropolis. He considered the water companies should long ago have been taken over by the metropolis, and he was surprised that London, after the tyranny to which the companies had submitted them, had not taken such a step years ago.

Mr. ELT reminded the vestry that the Metropolitan Board of Works had tried in vain to be the local authority, but, unfortunately, five-sixths of the members of the House of Commons were interested in these companies; and all these companies—whether gas, water, banking, or commercial—united to resist any attack made to interfere with their powers. The Board of Trade had been made the local authority in this case, although the Royal Commission recommended that it should be the municipal authority. He hoped that the vestry would join in the movement to take into their own hands these gigantic monopolies.

Mr. REDDISH having replied, the vote was taken, when 25 hands were held up for the amendment and 9 for the motion.

Mr. DENNIS moved, as a further amendment—"That the clerk be instructed to communicate with the Hackney District Board, and join with them in their action."

Mr. CATLING seconded the amendment, which was put and carried.

HOLBORN DISTRICT BOARD.

At the Meeting of this Board on Monday, Feb. 17—Mr. J. O. HALL in the chair,

The CLERK reported the receipt of some copies of the Metropolitan Board of Works report on the subject of the regulations made by the Board of Trade for giving a constant water supply under the Metropolis Water Act of 1871.

The CHAIRMAN said that under existing arrangements a constant supply of water would prove a curse to the people instead of a blessing. A charge of between £20 and £30 would be entailed upon the owners of every house for altering the present fittings and adapting them to the requirements of a constant supply. The Metropolitan Board of Works intended going to the Board of Trade to get the regulations remedied. The regulations as they now stood were framed almost exclusively in the interests of the water companies themselves. If they were put into effect they would give rise to great litigation and inconvenience.

Mr. BARTLETT proposed—"That in the opinion of this meeting the regulations under the Metropolis Water Supply Act of 1871 are impracticable and vexatious, and the board appeals to the Metropolitan Board of Works to endeavour to obtain an amendment of the same in the interests of the public."

Mr. RICHARDSON seconded the motion, which was passed unanimously.

Dr. Frankland, F.R.S., in his monthly report for January, states that the water taken from the Thames and Lea by seven out of the eight metropolitan water companies was again much contaminated by organic matters, while the waters drawn from the Lea and deep wells, and delivered by the New River, East London, and Kent Companies, were clear and transparent. Taking unity to represent the amount of organic impurity in the Kent Company's water, the proportional amount in an equal volume of water supplied by each of the other metropolitan companies was—New River, 4·4; West Middlesex and East London, 5·8; Southwark, 6·8; Grand Junction, 7·1; Chelsea, 7·7; and Lambeth, 7·9. The waters supplied by the Chelsea, Southwark, Grand Junction, and Lambeth Companies were delivered in a slightly turbid or imperfectly filtered condition, and moving organisms were observed in them all. Of the companies drawing their supply from the Thames, the West Middlesex alone delivered efficiently filtered water.

The Registrar-General publishes the following returns, furnished to him by the London water companies, of the average daily quantity of water supplied during the month of December, 1872. According to their returns, 100,931,281 gallons, or 458,577 cubic mètres of water (equal to about as many tuns by measure, tons by weight), were supplied daily; or 201·8 gallons (91·7 decalitres), rather less than a ton by weight, to each house, and 28·4 gallons (12·9 decalitres) to each person. According to returns of the London water companies made to the select committee on East London Water Bills (session 1867), it is estimated that during the year 1866 about 82 per cent. of the total supply of water for all purposes was for domestic use. Applying this proportion to the total quantity supplied daily in the month of December, 1872, it may be estimated that about 82,763,650 gallons were probably used for domestic purposes, or about 23·3 gallons per day for each inhabitant. This proportion no doubt varies from month to month, but the Registrar-General has no means of giving a more exact estimate.

Companies.	Number of Houses, &c., supplied in Dec., 1871.	Number of Houses, &c., supplied in Dec., 1872.	Aver. daily Supply of Water in Gallons* during Dec., 1871.	Aver. daily Supply of Water in Gallons* during Dec., 1872.
Total supply	491,857	500,229	102,446,507	100,931,281
From Thames	228,964	233,630	53,291,243	54,032,311
„ Lea and other Sources	262,893	266,599	49,155,264	46,898,970
THAMES.				
Chelsea	27,949	28,247	7,504,400	7,744,200
West Middlesex	42,818	44,199	8,757,115	8,705,355
Southwark and Vauxhall	78,658	79,075	16,401,227	16,459,672
Grand Junction	32,316	33,300	10,868,501	10,528,584
Lambeth	47,223	48,809	9,760,000	10,594,500
LEA AND OTHER SOURCES.				
New River	119,673	120,662	22,655,000	20,982,000
East London	102,624	104,196	20,081,000	19,530,200
Kent	40,596	41,541	6,419,264	6,386,770

* Including that for manufactures and for various purposes other than for domestic consumption.

Note.—The return for December, 1872, as compared with that for the corresponding month of 1871, shows an increase of 8372 houses, and a decrease of 1,515,226 gallons of water supplied daily.

GLASGOW WATER SUPPLY.

The following particulars are extracted from the quarterly report of the engineer, laid before the Corporation Water Committee, at their meeting on the 27th ult.:—

Fall of Rain.—The fall of rain during the past year was excessive, having averaged 31 per cent. above the mean of the last 19 years, and was much greater at the majority of the points where observations are made, than during any previous year. Taking the low country gauges at the bottom of Loch Vennachar, at Aberfoyle, at Mugdock, and at the Gorbals Works, the fall was 36 per cent. over an average, so that the fall has been proportionately greater in the low grounds than among the hills, and it was unusually great during the summer. The number of wet days, reckoning a fall of one-tenth of an inch and upwards as a wet day, was 200 at Bridge of Turk, 208 at Glengyle, and 209 at Loch Dhu. At Glengyle, which is the wettest part of the Loch Katrine district, 64·9 inches of rain fell on 45 days throughout the year, being an average of 1·44 inches per day. Many of these falls exceeded 2 inches, and one was upwards of 3 inches in depth, and the result has been that during the winter the streams have been in almost constant flood.

Water in Store.—As far as the fall of rain will permit, Loch Katrine is at present being kept down two feet below the top level, but it will be filled up as the season advances. On the 18th inst., there was 131 days water in store in the lochs, 19 days supply for the city in Mugdock reservoir, and 160 days supply in the Gorbals reservoirs for the districts supplied from them.

Water Supplied.—The quantity of water sent into the city and district during the months of October, November, and December last, averaged 32,000,000 gallons a day, being 500,000 gallons a day more than during the corresponding three months of 1871. The average quantity sent in for the whole of 1872 has been 28,550,000 gallons a day from the Loch Katrine works, and 3,870,000 from the Gorbals works; in all, 32,400,000 gallons a day, being 1,550,000 above the average of 1871. The consumption per head of the population for the past year has been 51 gallons, being 2½ gallons a head above the average of the three previous years, one-half gallon of which is accounted for by the increase in the consumption for trade purposes by meter. In the part of the city and district supplied from the Loch Katrine works, the consumpt last year has been 54½ gallons a head; in that part supplied from the Gorbals works, 37½ gallons a head; and in Barrhead, Nitshill, and Hurlet, also supplied from the Gorbals works, 29 gallons a head. These differences, which are very marked, are much the same as have obtained for some years past; and, after making allowance for the 6 gallons a head a day which is sold by meter, and that sold for trade purposes generally, but which is not measured, there is evidence that more water is wasted in the denser built and older parts of the city than in the suburbs. The inspection of the water fittings is now put on a better footing, and there are at present 12 men constantly engaged in this work. The water-closet apparatus in use in Glasgow is not satisfactory, and I propose drawing the attention of the Works Committee to this as soon as a report I lately made on the inspection is disposed of by them. There is beyond doubt a large amount of preventable waste from this class of water fittings.

EDINBURGH WATER SUPPLY.

Mr. Ayris, C.E., of Norwich, has just reported to the Edinburgh Water Trust upon the distribution of water and the suppression of waste in that city. He states that in pursuance of the instructions given him he has examined all classes of property, both old and new, within the district of supply. He then proceeds:

In many of the large houses I found the plumbers work of a good and expensive character, but put up on wrong principles. Work less costly, but fitted up on different principles, would have been more convenient to the consumer, and far less liable to waste the water of the trustees. Although the trustees possess but little power over the fittings erected in houses supplied from the water-works before the year 1863, they have the power to make and enforce regulations in respect to the fittings of all houses supplied since that date. Only a few years can elapse before the trustees will be compelled by Act of Parliament to give a constant supply of water to the inhabitants of their district; it is therefore much to be regretted that large sums of money should be expended day by day in furnishing houses with very large cisterns, and a class of fittings only required for or suitable to an intermittent supply, when the necessity for them will so soon cease to exist. A large number of the tenements in the poorer districts are without water-closets, and frequently have not the water laid on to the houses; in many cases the inhabitants have to fetch their water out of the courts from a considerable distance. It is a common practice for the waste water from the sinks in tenements to be collected outside the building from the different floors into a kind of rain-water pipe, and thus conveyed to the sewer. If this collecting-pipe were cut off at the bottom, and terminated over a trapped gully, the end thus being open to the atmosphere, sewer gases would be prevented from getting into the rooms, and your inspectors would be enabled to see if the taps were leaking, without inconveniencing the inhabitants by making an internal inspection. It was clear that a most rigid inspection of the houses supplied with water had been made since my previous visit to Edinburgh; but the fittings are of such an imperfect description that no reasonable amount of inspection can prevent the waste of water, and more especially when, as is now the case, the inspection is carried on with the service-cocks in the mains partly closed—thus affording an unequal pressure of water during different periods of the day, and a consequent variation in the amount of the waste. The old first-class houses are chiefly fitted with the pan water-closet, having a valve in the cistern and wire connexions, and called by your inspectors a "wire-closet." With the exception of the overflow-pipe from the cistern, this closet is more convenient in use, more easily repaired, and less liable to waste water, than any others in use in the district. The closet generally fixed in new property of all classes is the Ramage closet, which consists of an ordinary pan-container having a valve attached to it, and it can be supplied either direct from the main or from a cistern. These closets are very liable to waste water, and I have no doubt do so to a very large extent. I observed several places in course of erection, and intended for the reception of water-closets, in which it would be impossible to fix proper closet-fittings, and in which it would, in fact, be impossible for a person to sit down without considerable inconvenience. The water-cisterns are generally fixed in the roof or some equally inaccessible place, and the overflows being connected with the drains, the water may be wasted, without being seen or detected, for any length of time, even in the case of the most careful consumer. The tenement property is in many cases supplied by lead pipes of far too small a diameter to deliver a satisfactory supply of water. To ensure a proper supply of water throughout the district, every cock, whether on the mains or service-pipes, should be open to its greatest diameter, and every pipe be kept full of water; for if the latter condition be not observed, some of the consumers must necessarily be short of water at certain times, or have to fall back on a cistern supply. Although the houses have been inspected from time to time, to detect waste, no proper record has been kept showing the actual number of urinals, water-closets, baths, and taps fixed therein. Each house should, therefore, be visited by a properly qualified person, who should follow the service-pipe from the main to its termination, and describe the position, size, and make of the fittings throughout the house. Such a record, when once made, will last for years, and enable doubtful fittings to be watched, without subjecting to the annoyance of an unnecessary visit those persons who have a better class of fittings. The same record will also serve the purpose of a check on the rental-book. I am by no means alarmed at the large quantity of water reported to be taken by certain places and houses; it is simply due to imperfect fittings or burst pipes, and the waste can be detected if proper means be used. The most difficult things to deal with are the urinals, and they will run away any quantity of water in the most useless manner if left unchecked. They should either be supplied by meter, or regarded as a kind of water-closet, and be furnished with a small cistern, fitted with a division to contain not exceeding two quarts of water, and having the discharge regulated by two alternating valves and a pulley. I found the plug-tap or ground-cock still in use, notwithstanding the judgment in the case of *Inglis v. Edinburgh Water Company*. This description of tap has been excluded from almost every water-works in England, whether in the hands of a corporation or a company. No ground-cocks, or cocks closing by means of springs or weights, should be used. The double-valve service-box is admitted on all sides to be the most effective and useful apparatus for flushing a closet and economizing water; it can readily be made with all its fittings by your town plumbers, and is easily repaired. Lead is by far the best material for the construction of these service-boxes, and is not much more expensive than iron. All overflows and waste pipes should be disconnected from drains, and carried outside the house where they can be seen, and when this is impossible, owing to excessive expense or inconvenience, the pipes should be so arranged in the closet that a person entering it must immediately observe any waste proceeding from the overflow-pipe. The trustees would obtain much valuable information from an examination of the water-works regulations of the Corporations of Bury, Manchester, Rochdale, Barnsley, and Yeovil, and the regulations of the water companies of Norwich, Yarmouth, Sheffield, Leicester, Nottingham, and Derby, which indicate the nature of the regulations generally in force in those English towns where a constant supply is efficiently maintained; and I am fully satisfied that similar regulations could (with the exercise of due care and discretion in their application) be enforced in the case of Edinburgh and district, with very great advantage to the inhabitants and considerable improvement in the supply of water generally. It is advisable, as far as possible, to supply all hotels, stable-yards, and other places where water is used for business purposes, by low-pressure meters. The great object in all well-managed works, where constant supply is given, is so to arrange everything throughout the entire system of distribution that the water may always be found at the taps of the consumers, without the intervention of any cistern, excepting only in the case of hot-water apparatus and water-closets. After remarking that further investigation would be necessary to enable him to report on the general system of distribution, Mr. Ayris says it appears to him that more principal leading mains are required, so that each service district may be shut off distinctly by itself, without in any way interfering with the neighbouring districts; and, considering the great draught on the pipes, and the height to which the water is required to rise, many of the pipes appeared to be of too small a diameter. It also appears very desirable, if it can be accomplished, that more town storeage should be obtained in the shape of suitable service reservoirs for the large populations of Leith and Portobello, which could then ascertain the quantity of water they really receive.

NATIVE GUANO COMPANY.

At the Meeting of the Metropolitan Board of Works on Friday, Feb. 14—Colonel HOGG, M.P., in the chair—the Works Committee brought up the following report:—

Your committee beg to report that they have considered the resolution of the board of the 31st ult., referring it to them to make arrangements with the Native Guano Company for the removal of their works from the Crossness pumping station. Your committee have conferred with the solicitor on this matter, and there appears to be no reason why this board should not, if it so determine, cause the supply of sewage to be stopped, and resume possession of the land now occupied by the company. With regard to stopping the supply of sewage, this, your committee think, should be done at once, and they recommend that it be discontinued from and after Monday next. The removal of the works, material, &c., will, of course, be a matter requiring some longer time; but this, your committee consider, might reasonably be expected to be done by the 30th of April next, which is the day they recommend the board to fix. The solicitor has prepared and laid before your committee a form of notice to the company to the foregoing effect, and your committee now beg to submit this form, and recommend that it be approved, and when signed by the clerk on behalf of the board be forwarded to the company.

Mr. NEWTON, in moving the adoption of the report, said the board was under no obligation to give the company the use of their premises after the experiments were discontinued, and they had resolved to intimate to them that the supply of sewage would be cut off on Monday. The company wished to continue their experiments, but the feeling of the committee was that the board should not be identified with those experiments, and they recommended that the works should be removed by the last day of April. That was giving them two months, which was amply sufficient time for them to remove their plant. It would then be open to the board to receive applications from any other companies for the disposal of the sewage or the occupation of the land.

Mr. RICHARDSON objected to the report and said the board were acting with undue severity towards the company.

Mr. LAWRENCE thought that the company had already had every opportunity of testing their process, and every consideration had been shown them. He asserted that the company had failed in everything they undertook to do.

After a long conversation, the motion was put and carried by a large majority.

FIRE AT THE MANCHESTER GAS-WORKS.

On Tuesday, the 11th inst., shortly after two o'clock in the afternoon, an alarm of fire was raised at the Rochdale Road station of the Manchester Corporation Gas-Works. These works are situated close to the Lancashire and Yorkshire Railway, and are bounded on two sides by a densely-populated district. There are seven gasholders in the works, two of which are of recent construction, and are considerably larger than the other five. One of the latter, which was stationed near to the entrance to the gas-works in Back Irk Street, had been in use nealy nine years. It stood, when filled with gas, at a height of about 60 feet, contained about 600,000 feet of gas, and consisted of plates of wrought-iron 3-16ths of an inch in thickness. The fire occurred in connexion with this gasholder. Immediately adjoining it, on the Back Irk Street side, was a large building which had only been completed about three weeks, and was used as the revivifying shed, for the spent oxide of iron used in purification.

About two o'clock some painters were at work, and they observed that, at the bottom of the gasholder, near to the shed, there had been an ignition of gas. An alarm was immediately given, and Mr. Henry Lyon, the manager, Mr. Harrison, and others employed at the works, were quickly upon the spot. Their first impression was that the oil which accumulates upon the face of the water surrounding the bottom of the gasholder had by some means or other become ignited. Efforts were made at once to subdue the flames, but they quickly communicated with the revivifying shed, which, consisting largely of wood, was quickly enveloped in flames. The fire-hose belonging to the works was promptly fixed to the mains, and a plentiful supply of water was thrown upon the flames in the shed, and information was sent to the Manchester Fire Brigade, who, with their steam fire-engine and seven other engines, arrived shortly after. The steam-engine accomplished the distance between the chief fire station and the gas-works in seven minutes, during which time a 30-lb. pressure of steam had been got up. The engine was stationed at the top of Back Irk Street, and very speedily threw a copious supply of water on the flames. The other engines were not used. Great fears seem to have been entertained by the inhabitants of the locality that an explosion of gas would take place, but notwithstanding the danger which was apprehended, they had great difficulty in preventing the large crowd which had assembled from forcing their way into the works. To meet the apprehensions, generally entertained, of an explosion, the occupants of the houses contiguous to the works were induced by the police to leave them, and in some cases they commenced to remove their furniture. It soon became apparent to those at all acquainted with the construction of the gasholder that there had been an escape of gas from the lower side nearest the shed, and it was felt that if the flame there could be stopped from spreading, as the gas had been turned off from the retorts, the holder would gradually settle down as the gas expended itself from the leakage. With this view the utmost efforts were made to extinguish the flames in the shed, and at the same time to keep under the flame ignited at the leakage. For some little time the fire burnt with fearful violence in the vicinity where it first burst out, and the flames swept to the top of the gasholder and around the sides in a most alarming manner. The officials at the works, however, worked with undaunted perseverance, assured that there was no danger so long as no atmospheric air succeeded in getting into the gasholder, which continued to gradually sink. After the fire had burnt for three-quarters of an hour, one of the upright iron pillars which sustained the holder, affected by the heat of the flames, suddenly snapped near the top, and fell upon the holder, forcing a great hole through the plates. Instantly there was a great escape of gas from this aperture, which fired, and continued to burn notwithstanding the heavy discharges of water which were thrown upon it. This caused still greater alarm in the neighbourhood, as it was feared that the holder would not descend to the bottom, so as to force out all the gas, owing to the tackling being broken by the falling of the pillar. Happily, this fear was not realized, the gasholder gradually sinking till about half-past three, when it had sunk as low as it could get, and the flame from the aperture burnt steadily without endangering anything around it. By this time the fire in the shed, which had been thoroughly gutted, and the roof of which had fallen in, was got under. The firemen continued to play upon the flame from the gasholder until half-past four o'clock, when the flame disappeared, and workmen were at once set to work to take off the man-hole doors at the top of the holder, through which the remaining gas escaped. The top of the holder had evidently been very much strained by the fire, as after the gas escaped it collapsed to a considerable extent.

It is impossible to form any reliable idea as to the cause of the fire. Many persons are under the impression that the fire originated through the oil becoming ignited, either through a spark falling upon it, or a light coming in contact with it. Others believe that through corrosion there had been an escape of gas, which had become ignited by a fire which was burning in the revivifying shed. A third supposition is that the gasholder had been filled too full with gas, and had been raised above the water-line at the bottom.

The gasholder will have to be taken completely out of its bed and repaired before it can be made use of again, and the estimated damage will be between £5000 and £6000.

Alderman King, Mr. Woodward, and other members of the Gas Committee were at the works very shortly after the fire was discovered.

The official inquiry into the cause of the catastrophe was commenced on the 18th inst.

CHELSEA WATER-WORKS BILL.

The organized opposition to this bill being to some extent founded on a misapprehension of its scope and character, it has called forth the following letter from Messrs. Few, the company's solicitors:—

"*To the Editor of 'The Times.'*

"Sir,—So much misapprehension appears to exist in the public mind as to the nature and extent of the new works contemplated by the Chelsea Water-Works Company, that we are instructed, as their solicitors, to make the following statement.

"All that the company really propose to do is to construct two reservoirs on the south side of the Thames, or the opposite side to Hampton Court grounds, leaving the present bank and the trees therein untouched.

"1. The company do not propose to construct a river wall, though one is shown on the deposited plans, which often embrace more than is really necessary. The engineer, Mr. Bateman, is satisfied that no wall is necessary, and we shall propose to the committee to strike it out of the bill, which we have no power now to do in any other way.

"2. The apprehension that some works are contemplated in the river Thames or the Ember is totally unfounded, though the limits of deviation were carried to the parish and county boundary in the Thames. The bill authorizes the company to do nothing there without the consent of the Conservators, which it may be safely taken for granted will not be given to any such encroachment.

"3. The reservoirs will not extend nearer to Thames Ditton than the creek shown on the deposited plan as 13A, on the west side of the property occupied by Mr. James Morling.

"4. No house property in Thames Ditton will be taken east of that creek unless it becomes necessary for the purpose of laying the pipe along the road, and we need not say that in that case the owners will be fully compensated. Nor will the landing place at Ditton Ferry be interfered with.

"5. The reservoir banks will be turfed and planted, and much lower than houses would be if they occupied the same place.

"We are further instructed to say that a plan showing the proposed site of these reservoirs can be inpected at the company's works at Seething Wells, or at our offices here, on any day between 10 and 4.

(Signed) "FEW AND CO.

"2, *Henrietta Street, Covent Garden, Feb.* 18."

SANITARY ENGINEERING.

[Extract from the Inaugural Address of JABEZ CHURCH, Esq., F.G.S., C.E., as President of the Society of Engineers, Feb. 3, 1873.]

Undoubtedly the disposal of sewage is the most important question in connection with this subject, and although it has not yet received a permanent practical solution, sufficient has been done during the past twelve months to lead to the hope that the attainment of the desired object is not very far off. The varying physical features of localities in which the question of the disposition of sewage has to be solved, as well as other attendant circumstances, render it necessary to adopt various modes of treatment. Thus we have the irrigation, the filtration, and the precipitation processes. In the first-named process we have one the success of which in every respect has long since been established. Not so, however, with the second—filtration—which in hot weather becomes a nuisance, and by which the manurial ingredients are wasted. But, successful as irrigation is, there are many cases in which the system cannot be applied, and which are, therefore, dependent upon precipitation for affording the means of showing a clean bill of health. With precipitation, however, a difficulty has hitherto been experienced in dealing with the accumulation of sewage, and wherever any of the precipitating processes have been in operation for any length of time, large deposits of undried sewage are the invariable result. But the insurmountable difficulty has been how to convert it at a cheap rate and in a convenient manner into dry powder, fine enough to be used for agricultural purposes, and without having to undergo a separate grinding process. Numerous attempts have been made to solve this problem of drying, and the result has been that the cost of manual labour alone has amounted in some cases to nearly as much as the value of the dried manure, whilst in others it has exceeded it. During the past year, however, a mechanical process has been introduced into practice, and, so far as the drying is concerned, has produced satisfactory results. This process, which is the invention of Messrs. Milburn and Co., consists in drying the solid sewage on a hot hearth, which the whole of each charge is made to traverse. The machine in which this is accomplished consists of a floor formed of iron plates which are heated by a fire placed under the feeding end, the heated products of combustion passing under the drying floor throughout its whole length. Over the bed is a frame extending nearly the length of the floor, to which is fixed a series of transverse bars, the edges of which rest on the floor and act as scrapers. On the top of this frame at each side are three bracket pieces, each having a vertical slot in which work crank pins, the cranks being attached to gearings placed on either side of the machine, all being arranged to revolve together. The slots are equal to the full length of the stroke of the cranks, so that at each revolution the frame is moved to and fro, and the transverse bars scrape the whole surface of the bed and prevent the sewage from caking. The length of the slot can be regulated by an adjusting piece, and according to the extent to which the slots are contracted, so is the frame lifted at its backward movement. The scrapers then pass over a portion only of the sewage, and at the return stroke each scaper passes a portion on to the next scraper, and thus the sewage travels the length of the bed until it comes off dry at the end in the form of powder. Between the scrapers, and fixed to the moveable frame, is another series of transverse bars, which serve as pulverizers. They are fixed at varying heights above the plate, but do not touch it. At the inlet end of the machine they approach within 1½ inches of the plate, this distance gradually diminishing with each until the last one at the delivery end very nearly touches the plate. As the sewage passes over the plate these pulverizers break it up, and as it dries they finally reduce it to powder. Besides these pulverizers, which are fixed to and travel with the frame; there are others which are stationary. These are transverse bars fixed to the sides of the machine and carrying a series of prongs which assist to break up the mass of sewage as it is moved to and fro. They are used at that point where the sewage begins to stiffen and assume the consistency of clay. The products of combustion from the fire after passing under the plate are conducted over it and are carried away by a chimney along with the vapours arising from the drying process. It is alleged that some practical trials with this machine at the Borough Sewage Works, Leicester, show that a profit is obtainable from sewage thus treated. The furnace of an apparatus capable of drying 28 tons of sewage in 24 hours requires rather less than a ton of slack coal for that purpose.

ARTIFICIAL LIGHT AND HEAT, AND NEW INVENTIONS RELATING THERETO.

This was the title of an illustrated lecture delivered on Wednesday last, at the meeting of the Hastings and St. Leonards Historical and Philosophical Society, by Mr. A. H. Wood, the manager of the gas-works in that town. We make a few extracts therefrom:—

PETROLEUM GAS.

I said, at the commencement of my lecture, that a hydrocarbon was the combustible we used whether our artificial light was procured from coal gas, oil-lamps, or candles; and I may here, perhaps, explain that this is strictly true, not only with the ordinary sperm and other refined oils of commerce, but also with the petroleum oil of America and those preparations of it which are now so much before the pubtic. Subterranean reservoirs of these oils in their crude form, of immense magnitude, exist—enough to illuminate the world for ages. They only require to be pumped up and rectified to a fixed specific gravity in order to be brought into general use. It is these oils, rectified to a specific gravity of ·680, that are proposed to be used for the purpose of manufacturing "new gas," and also for carburetting the atmosphere, and so making "air gas." The first question which naturally presents itself is this: Can an illuminating gas be manufactured from this oil? I think a single experiment will satisfy you upon that point. I will place about half a teaspoonful of rectified petroleum into a glass retort, and heat it; then I will convey the gas away into another vessel, and ignite it. If I succeed, I think you will be satisfied that illuminating gas can be manufactured from petroleum, whether of a commercial value or not.

AIR GAS.

With these explanations, I have paved the way for an experiment with what is called "air gas." This is nothing more nor less than the atmospheric air, saturated with highly rectified petroleum, or other hydrocarbon vapour, and then consumed as an illuminating gas. But this is by no means a new thing. I have been in the habit of occasionally showing it to my friends for several years; and once or twice at a sister local institution. Several patents for it have been taken out, and all have come to a sorry end. One of these was started, about ten years ago, by a Frenchman, M. Mongruel, under the name of "The Photogenic Gas Company," and it gained considerable attention. I shall never forget the triumphal flourish of trumpets with which the *Star* newspaper came out about the matter on Jan. 26, 1863. The editor started off at full gallop with these words: "Coal gas is now superseded; at any rate, it is no longer a necessity. Every man may make his own gas at a small expense;

and when it is made it will be vastly superior to the article which the gas companies supply." This is something like every man being his own lawyer, his own doctor, his own farrier, and his own everything else—and with like success. Many who tried it (and I know some) had some very interesting experiences of hydrocarbon and its explosive qualities. They retired from the adventure with whiskers well singed, their eyebrows taken off, and their faces well scorched! The specifications of the Frenchman were identical with that which is occupying public attention now. To enable you to identify it, I will give you one other extract from the article in the *Star:* "The invention which the company has been formed to promote is that of M. Mongruel, a French gentleman, and has already been extensively adopted in France. Its general character we have already indicated when we said it converts atmospheric air into an oil-bearing gas." And again: "The material with which the air is carburretted is a highly refined extract of petroleum oil," and so on. There, in 1863, you have a full description of what is pretended to be new in 1873, and which I have personally experimented with during the whole ten years. That it has *not* arrived at the point where it eclipses every other description of artificial light, the last ten years have proved; and I must add my honest opinion that I see no present prospect of its doing so.

One of the great difficulties of this gas is its want of permanency. The vapour is given off at a certain temperature, and is only a permanent gas at a similar temperature. When used at a lower temperature it deposits naphthaline, which robs the gas of its luminosity, and stops up the pipes with crystals. If this can be remedied, one, at least, of the difficulties will be overcome.

New Gas.

I will now attempt to direct your attention to another invention which has been attracting public attention still more recently, but which, although christened "new gas," is very much older than that we have just been noticing. This gas differs from the former in the fact that a non-luminous gas is first manufactured before carbonization takes place. This non-luminous gas is hydrogen, but this hydrogen, instead of being so pure as that we have had under investigation, has carbonic acid, carbonic oxide, and sulphuretted hydrogen gas—all poisonous impurities—mixed with it, as a natural consequence of the manner in which it is manufactured. The process of manufacture is by bringing superheated steam into immediate contact with highly heated coke, iron, or charcoal, in a series of retorts. This decomposes the steam—or, more properly speaking, the water of which the steam consists—the hydrogen of which, with the impurities mentioned, is passed on and called "heating gas;" as such it is proposed to use it for heating purposes, apart from a light-giving gas; the illuminating properties are added to it afterwards. This process, although taking the name of "new gas," has been patented over and over again during the last half century. Mr. Michael Donovan took out patents for it upwards of 43 years ago—viz., in the year 1830; and Mr. Gilbert Saunders took out patents for it in 1833 and 1834. Mr. Floret took out a patent about the same time for "decomposing steam by means of coke heated to a high temperature in an atmosphere of oxygen," and several others have followed up the same idea. So much for the history of "new gas."

Nothing, however, can be more true than the fact that the combustion of pure hydrogen gas is accompanied with intense heat; but whether it can be manufactured and distributed so as to become a commercial success is quite another question. [After showing some experiments the lecturer continued:] The "new gas," as it is falsely called, differs from the "air gas" in that it proposes to supply the gas in a non-luminous form, for heating purposes only. The gas is carburetted by passing through petroleum spirit on the premises of the consumer. But the disastrous results which have followed this attempt many times previously, to my mind are conclusive against this part of the proposition ever assuming anything like a safe and practical form. All the hydrocarbon qualities that it possesses must be imparted to it before it reaches the consumer's premises, or the existence of it will be very short indeed. I do not understand that it is intended to adopt that course entirely; but, under certain conditions, to carburet the gas on the works, and send it out to the consumers as an illuminating gas all ready for use. This part of the process is precisely like that which I have shown you with the air gas.

Conclusions.

I think I have now little to add. I have explained to you the ordinary laws of combustion; I have attempted to show what petroleum vapour can do in carburetting both common air, and also hydrogen gas; and I now wish to give my observations a practical turn by remarking that I believe these light rectified hydrocarbons are not sufficiently understood, nor used with sufficient caution. They often throw off inflammable vapour at ordinary temperatures, and form explosive mixtures where little suspected. Many buildings—some, I believe, in Hastings—have been burned down; many ships have been blown up; and many lives lost by fires, the origin of which are classed among the "unknown," but which origin has arisen with these unsuspected hydrocarbon vapours. No one can have read of the awful catastrophe at Abergele, when several passengers were burnt to a cinder in a closed railway carriage; or of the accident in December, 1868, at Three Bridges, when two or three lives were lost, and valuable property was shattered to atoms, by an explosion of this same vapour, in one of the Brighton Railway enclosed trucks; or of the many other accidents which may be traced to the same cause, without wishing that the Government would impose more stringent conditions on the sale of these combustibles. It must also be wished that the proper authorities should carry out these conditions more rigidly, and the public be more cautious how they use a preparation that may so easily cause the destruction of surrounding valuable property, and the still greater sacrifice of many human lives.

Airedale Gas Company.—The half-yearly meeting of this company was held on Monday, the 10th inst., Mr. Robert Sutcliffe in the chair. The usual dividend after the rate of 10 per cent. per annum was declared and also paid, leaving a balance to be carried to the augmentation of the reserve-fund. The shareholders were congratulated upon the continued prosperity of the concern.

Longridge (near Preston) Gas Company.—On Saturday, the 15th inst., the annual meeting of shareholders in this undertaking was held. The report of the directors, which was adopted, recommended a dividend after the rate of 6½ per cent. on the paid-up capital of the company.

Boroughbridge Gas Company.—The annual meeting of the shareholders of this company was held on Monday, Feb. 3—Mr. M. Mountain in the chair. The accounts for the past year were read by the secretary (Mr. T. S. Turner), and adopted by the meeting. A dividend of 5 per cent. upon all shares was declared, and the two retiring directors were re-elected.

Symes's Patent Economic Gas Company, Limited.—This company, which was formed in 1871, with a nominal capital of £25,000, to carry out the patent of Mr. G. Symes for "Improvements in portable apparatus for manufacturing gas," is now undergoing the process of a "voluntary winding up," and the creditors are invited, by advertisement, to send in their claims to the liquidators before the 18th proximo.

Warner's Cost Price Sheets.—At the Dublin meeting of the British Association of Gas Managers, in 1871, Mr. W. J. Warner read a paper "On the Best Form of Carbonizing Accounts," and he exhibited specimens of the forms of account which he had himself employed in his works at South Shields. The first of these sheets was intended to furnish the average and comparative cost of gas per 1000 cubic feet, with weekly report of working; the second gave the average and comparative cost of the distribution of gas per 1000, with report of work. These sheets were subsequently published, but have been for some time out of print. A second edition is now announced by Mr. Warner, with added notes for the guidance of those using them.

Gas Explosion at Warrington.—An alarming gas explosion occurred shortly before eight o'clock last Tuesday night at Warrington. The nursery of the house occupied by Mr. T. S. Smith, surgeon, Rylands Street, became filled with gas, which had escaped from the pipes, and on a servant approaching the room with a light a terrific explosion occurred, which shook all the houses in the vicinity. Mrs. Smith was rendered insensible by the shock; the servants and the children escaped without injury. The whole of the windows were blown out, and various panes of glass across the street were smashed.

Ilfracombe Gas Supply.—The gas-works here are to be considerably enlarged and improved. The company's late Act of Parliament, and the necessity for additional supply of gas to the town, require the works to be much extended. Messrs. Willey and Ford, gas engineers, of Exeter, have been engaged for the execution of the various works, from plans and drawings prepared by them, which are much approved. The new works will comprise a new gasholder, capable of containing over 60,000 cubic feet, additional purifiers, new condensers, mains, &c. More than 150 tons of new manufactured ironwork will be employed in the improvements. From the known diligence and experience of the contractors, the works are fully expected to be completed by August next.

Wakefield Gas Company.—The fifty-second ordinary half-yearly meeting of the shareholders in this company was held on the 17th inst. Mr. W. Statter, the chairman of the board of directors, presided. The chairman, in moving the adoption of the accounts, said that in consequence of the great increase in the price of coal, and the decrease in the consumption of gas, caused by the passing of the Licensing Act, the profits on the half year were only £2243, and, as it required £3210 to pay the usual dividend, they were compelled to dip into the reserve-fund for the difference of £967. The accounts were adopted, and the usual dividend of 10 per cent. on the old capital, and 7½ per cent. on new capital, was declared. In the course of the proceedings it was stated that the new gasholder had been rated at £120 per year, that the old gasholder was about to be repaired at a cost of £2000, that £4000 out of the reserved fund had been invested in Lancashire and Yorkshire Railway Company's bonds, and that the price of coke, which was some time ago increased from 15s. to £1, had been reduced to 12s.

Rating of the Hereford (Corporation) Gas-Works.—At the quarterly meeting of the Town Council on the 4th inst., the Gas Management Committee reported that the Poor-Rate Assessment Committee had offered to make a reduction in their assessment of the gas-works from £2506 to £1800, but this sum the committee thought considerably too much, it being more than double the amount paid by the late gas company, whose profits were more than the corporation could expect to make with coal double the price paid by them. A statement of accounts had been made and laid before the Assessment Committee. They were now informed that it had decided to appoint Mr. Hedley, of Sunderland, to make a valuation of the works. The only objection the committee had to this course was, that as the works had so recently come into their hands, they could possibly show what the profits for the year would be; and as that must be the basis for making the assessment, they thought that to appoint an assessor at the present time would only be throwing away the money of the ratepayers, as until the profits for one year were ascertained no satisfactory assessment could be made.

The Lighting of Common Stairs in Dundee.—Some time ago Mr. M'Crae, the manager of the gas-works, was requested by the commissioners to frame a report as to the lighting of common stairs. Mr. M'Crae's report was submitted to the Works Committee of the commission on the 5th inst., and was remitted to a sub-committee, who were authorized to prepare a plan whereby its provisions might be carried into effect. The manager stated that he considered it would be advisable that the gas supplied to the lamps in common stairs should be measured by meter, because then the consumption could be distinctly ascertained, and, in addition, proprietors would have an inducement to be careful to see that loss from leakage and other causes did not occur, because if it did they would be chargeable for it. He estimated the cost of each light at 8s. per annum, assuming that the gas was burned all night, and the lamps were not lighted during June, July, or August. If the gas was supplied from the main, he recommended that 23s. should be charged for each light. If the commissioners undertook the lighting of the lamps, Mr. M'Crae proposed that they should be paid 4s. 2d. annually for each, it being stipulated that all the lamps should be lighted at one hour and put out at one hour, the commissioners not being responsible for accidents arising from the lamps not being lighted or being extinguished by mischievous persons. He pointed out that the lighting would have to be performed by a separate staff from that employed for the public lamps.

Stealing Gas.—At the Sheffield Police Court, on the 14th inst., John Slater, a silver chaser, residing at 123, Burngreave Road, was summoned by the Sheffield United Gaslight Company for having unlawfully attached a pipe to the service-pipe belonging to the company for the purpose of obtaining gas, and thereby defrauding the company. It appeared that some time ago the defendant's meter was taken away, in consequence of his being in arrears in his payment for the gas he had consumed, and at that time the company's service-pipe was detached from the fittings in the defendant's house, and thus he was debarred from obtaining a supply of gas. On the 30th of January a meter inspector in the employ of the company was examining a meter in the house adjoining that occupied by the defendant. He traced the smell to the defendant's house, and on going into the cellar he noticed that the lead pipe which led from the main pipe in the street, which had been previously cut and closed, had been attached to the fittings in the defendant's house by means of an india-rubber tube. The defendant afterwards admitted that he had made use of the pipe for the purpose of obtaining gas, but said he had only been "trying a little experiment." He now said that he had committed this act through stress of poverty, because he had no money to buy a candle with. The Bench imposed a penalty of £5, but on behalf of the company it was agreed to remit £3 of this amount, and it was stated that the money would be handed over to the Infirmary fund.

Bromsgrove Gas Consumers Company, Limited.—The fourth ordinary general meeting of this company was held on the 11th inst.—Mr. W. Jefferies, chairman of the board of directors, presiding. Mr. H. Brewster, secretary and manager, read the report, which stated that the additional 1000 shares, which it was resolved at the last meeting should be issued, had all been taken up, and the debt owing to the bank of £930 3s. 9d. had been paid off, and there was now a balance in favour of the company. The rental for gas and receipts from all sources during the past year amounted to £2235 11s. 4d., and after deducting £118 14s. 5d. for repairs of mains and tar wells, and the necessary items of expenditure, there remained a balance of £593 13s. 3d., out of which the directors recommended the payment of a dividend of 7½ per cent. per annum on the original 6000 shares, and the same amount for six months on the 1000 shares last issued, leaving £52 3s. 3d. to be carried to the reserve-fund, making that fund £448 16s. 1d. The directors had also taken off, for wear and tear of works, &c., £168 3s. 4d. In consequence of the increased cost of coal, lime, &c., it was resolved at the last meeting to raise the price of the gas 8d. per 1000, making it 4s. 8d; but having made a good contract for coal, the directors had given the consumers the benefit of it; and this increased price had been changed only since the 1st of October last. The report concluded with an expression of the entire confidence of the directors in the stability of the company. On the proposition of the chairman, seconded by Mr. Green, the report was adopted, and resolutions were passed declaring the dividend, as recommended in the report, to be payable on and after the 1st of March, and re-electing the retiring directors. Mr. N. Gosling, Worcester, was also re-elected auditor. Votes of thanks were passed to the chairman and board of directors, and also to Mr. Brewster, the secretary and manager.

EXPLOSION OF GAS IN BIRMINGHAM.—About half-past eight o'clock last Wednesday morning an explosion of gas of an alarming character occurred in a house in Osler Street, Ladywood, occupied by Mr. George Hall, who is employed at the New Union Flour Mill, Mill Street. It appears that the gas-meter was removed from the cellar about three years ago, and since that time gas had not been used in the house. A number of men are at work in Osler Street paving the footpath, and it is supposed that the jarring—consequent upon their operations—of the gas-main pipe caused the cap placed at the end of the pipe in the cellar to fall off, as it is alleged that the cap was only held by one thread. The main is that of the Birmingham and Staffordshire Gas Company. Whilst Mrs. Hall and her four children were at breakfast they became very sick, and attributed the fact to an escape of gas, which had become very strong and disagreeable. A man named Bassett, in the employ of Mr. Fitzmaurice, contractor, and at work near the house, was called in. Bassett very indiscreetly proceeded to descend to the cellar with a lighted candle in his hand, and as soon as he opened the door a terrible explosion of gas occurred. Bassett was knocked to the ground, his hands, face, and neck were badly burnt, and most of his hair singed off. A door, which was closed, leading into an entry, and opposite to the cellar door, was broken in several places, and a number of articles of wearing apparel lying on a table in the kitchen were scorched, six panes of glass in the kitchen window were blown clean out, and the whole house was violently shaken; as may be supposed, the inmates were greatly alarmed. So great was the force of the explosion that four panes of glass in the parlour window of the house on the opposite side of the street, occupied by Mr. Richards, were smashed. As soon as practicable, the pipe from which the gas had escaped was secured.

THE PURCHASE OF THE ALLIANCE GAS-WORKS BY THE CORPORATION OF DUBLIN.—A special general meeting of the Chamber of Commerce was held on Wednesday last, to receive a communication from the gentlemen named by them to confer with the Gas Committee of the corporation upon the proposed purchase of the gas-works. The communication was as follows:—"That we unanimously request the council of the Chamber of Commerce to petition against the gas bill, with the object of getting a *locus standi* for the protection of the interests of the citizens before the committee of the House of Commons, and we recommend this course whether the bill now before Parliament be approved of or not, and without giving any opinion on said bill at this stage of the proceedings." The chairman (Mr. La Touche) said Mr. Wigham and Mr. Pim joined in the above recommendation. Mr. Bagot stated that the deputation had met the committee of the corporation four times, the first and second occasions being merely preliminary. At these meetings all information and documents were freely supplied. At the first meeting they found that the corporation had appointed two gentlemen—gas engineers, Messrs. Cleminshaw and Pritchard—to investigate the whole business, go through the works, and report to the committee as soon as possible. At the third meeting a letter was read from Mr. Cleminshaw and Mr. Pritchard, in which they stated that they had collected the materials which they deemed necessary for compiling the valuation and report, but that as it would take some time to complete them, and as it was evidently of great importance that there should be no delay in the ratification of the bargain entered into with the gas company, they thought it advisable to state at once that they should in due time be able to make such a report as would justify the corporation in completing the purchase on the terms stated in the schedule to the bill. On the motion of the chairman, seconded by Mr. Parker, it was then resolved to take the necessary steps to petition against the bill with a view to obtain a *locus standi*.

THE GLASGOW CORPORATION *v.* THE PARTICK, HILLHEAD, AND MARYHILL GAS COMPANY.—As previously reported, Sheriff-Substitute Dickson granted an interdict in this case against the defenders, preventing them from disconnecting any meter belonging to the pursuers, or in any way interfering with the gas-pipes belonging to them. On the 7th inst., parties procurators were heard by Sheriff Bell on the appeal lodged by the defenders, and at the close the sheriff intimated that he would adhere to the sheriff-substitute's decision. Appended to the interlocutor appears the following "note:"—"The matter at issue in this action is more of form than of substance. Both parties profess that they have no desire to challenge the free choice of the consumer between the two supplies of gas offered for his acceptance, and admit that they have not the power to do so, even if they had the desire; but, unfortunately, the defenders have, by their actings, apparently left the consumer, who has been hitherto the pursuers customer, out of the case altogether, and have come between the pursuers and their customers without any sufficient evidence that they are authorized to do so. The simpler and the more correct plan is for the parties who wish to cease to deal with the pursuers to intimate this direct, and if the pursuers delay to afford forthwith the requisite facilities for the change, it may then, but not till then, be carried out by any one employed by the consumer."—At the meeting of the corporation on the 6th inst., it was stated that the subcommittee on gas, appointed to negotiate with Sir George Campbell as to his claim for compensation for the minerals in the ground occupied by the gas-works belonging to the corporation at Maryhill, met on Jan. 15, when the Lord Provost reported that he and Mr. Foulis had met with Sir George Campbell on the subject; and, after lengthened negotiation, the sum of £2000 was offered and accepted in full of the claim for coal and minerals, down to and including the gas seam—the corporation to pay the expenses incurred by Sir George Campbell in the action and submission. Sir George Campbell had also stipulated that if the corporation wished at any future time to take minerals under the gas coal seam, they should do so in terms of the Railway Clauses Act. The sub-committee having considered the matter fully, agreed to approve of the action, and to recommend the general committee to confirm the proposed recommendation, and authorize Mr. Wright to intimate the same to Mr. Kirkwood, and arrange with him to stop legal proceedings. The course taken by the Gas Committee was approved.

THE GAS QUESTION AT PONTEFRACT.—A large meeting of the inhabitants of the borough of Pontefract was held in the town-hall, on Monday, the 3rd inst., convened by requisition to the mayor (Mr. W. Mathers), "to consider the propriety of opposing the bill in Parliament, now promoted by the Pontefract Gas Company, believing that the manufacture of gas in this town, and profits arising therefrom, both as regards the public lamps and private consumption, should be undertaken and held for the benefit of the ratepayers, and not for the benefit of any private company. The mayor presided, and the meeting was addressed by Mr. Councillor Addingley, Mr. Councillor Barstow, Mr. R. Moxon, Mr. W. H. Barker, and Mr. J. A. Phillips, all of whom spoke against the proposed Act as giving a monopoly adverse to the interests of the town generally. Mr. Alderman Jefferson, Mr. Councillor Pease, and Mr. John Dale took the other side, and in the animated proceedings some personalities were uttered, and confusion prevailed at intervals. On the proposition of Mr. Councillor Addingley, seconded by Mr. R. Moxon, the following resolution was unanimously adopted:—"That in the opinion of this meeting it will be very prejudicial to the interests of the inhabitants and ratepayers of the borough of Pontefract and its vicinity if compulsory and exclusive powers should be conferred upon the said company for the supply of this district with gas; and that the management of the gas and water works should be in the hands of the local authorities, which principle has been frequently asserted in Parliament; and that a petition be at once put in course of signature, asking the Town Council to oppose the said bill in Parliament." Mr. J. A. Phillips proposed, and Mr. W. H. Barker seconded, the following resolution, which was also unanimously adopted:—"That this meeting also petition Parliament against the bill, so that in the event of the corporation not acceding to such a request, or not succeeding in such opposition, this meeting may have their views represented to them on the subject."—A special meeting of the Town Council, held in the town-hall on Monday evening, Feb. 10, the mayor (Mr. W. Mathers) presiding, was called to consider and determine the question as to "Whether the corporation shall oppose a bill in Parliament for lighting Pontefract, Tanshelf, and Carleton with gas." After a long and animated discussion the meeting was adjourned until the following evening, when the council reassembled. In the absence of the mayor, Alderman Mark Pearson presided. Councillor Addingley proposed, and Councillor Moxon seconded, the following resolution:—"That the corporation do oppose a bill in Parliament for lighting Pontefract, Tanshelf, and Carleton with gas, and that the borough funds be applied in payment of the costs of such opposition." Alderman Jefferson proposed, and Councillor Wright seconded, the following resolution as an amendment:—"That, instead of spending the money of the ratepayers on so uncertain and costly an undertaking as that of opposing the bill of the gas company, the Town Council should endeavour to obtain such modifications of the said bill as may be deemed requisite to protect the interests of the ratepayers; and be it further resolved that a committee be appointed to examine the said bill, and report what alterations are desirable, and, if necessary, to confer thereon with the gas company." On the amendment being put to the meeting, eight voted for it and five for the original proposition. Councillor Moxon protested against two of the council—who were directors of the gas company—voting on the question, and insisted that the names for and against should be written down by the town-clerk, which was accordingly done.—An adjourned meeting was held on Thursday last, when the following motion was adopted:—"That it is the opinion of this meeting, that as a body, they take no step or steps to oppose the Gas Bill, and leave the said opposition to any private individual or individuals, and that the majority of this meeting will not stultify nor render themselves responsible for any expenses."

DR. WHITMORE'S REPORT ON THE QUALITY OF THE GAS SUPPLIED IN ST. MARYLEBONE, DURING THE MONTH OF JANUARY, 1873:—

JANUARY, 1873.	Illuminating Power in Sperm Candles.			Mean Pressure in Tenths of an Inch.		Mean Quantity of Sulphur in 100 Cub. Ft.	Mean Quantity of Ammonia in 100 Cub. Ft.	Sulphuretted Hydrogen.
	*Mean of 20 Obser.	Highest.	Lowest.	Highest.	Lowest.	Grains.	Grains.	
Imperial Company's gas . . .	16·62	18·00	15·50	25·93	9·63	32·33	0·82	None.
Chartered Company's common gas	16·77	17·40	15·0	30·64	13·47	17·99	1·61	None.
Chartered Company's cannel gas	23·64	24·40	22·50	24·41	10·37	22·54	0·91	None.

Mean of daily readings of barometer . . . 29·57
" " " thermometer . . . 53·74

* Each observation consists of 10 readings of the photometer, at intervals of one minute.

During the month the mean illuminating power of the Imperial Company's gas was equal to the light of 16¼ sperm candles; it ranged between 15¼ and 18 candles. The amount of its sulphur impurity in 100 feet of the gas was 32·33 grains, and of ammonia 0·82 grain. The mean intensity of light of the Chartered common gas was equal to that of 16¾ sperm candles; it ranged between 17·40 and 15½ candles. The amount of its sulphur impurity was 18 grains, and of ammonia 0·61 grain. The mean light of the cannel gas was equal to 23½ sperm candles; it ranged between 22·50 and 24·40 candles. The mean quantity of sulphur found in it was 22·54 grains, and of ammonia 0·91 grain. The pressure of all the gases was satisfactory, and on no occasion was sulphuretted hydrogen detected in either of them by the ordinary tests. The above results were obtained from the gas manufactured by the Imperial Company at their Fulham works, and from the Chartered Company's gas, manufactured at their works, Horseferry Road, Westminster.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE WATER SUPPLIED IN ST. MARYLEBONE, DURING THE MONTH OF JANUARY, 1873:—

JANUARY, 1873.	Total Solid Matter in degrees or grains per Imperial gallon.		* Loss by incineration of Solid Matter in previous column.		Hardness before boiling in degrees.	Hardness after boiling in degrees.
	Jan. 1872. 0°	Jan. 1873. 0°	Jan. 1872. 0°	Jan. 1873. 0°	0°	0°
Distilled Water . . .						
West Middlesex water .	..	20·44	..	0·96	15·7	4·1
Grand Junction water .	..	20·86	..	0·94	16·2	4·8

* The loss by incineration represents the amount of organic and other volatile matters contained in an Imperial gallon (70,000 grains) of water.

The water supplied by the West Middlesex Company during the month was perfectly filtered and bright, although slightly coloured. Some turbidity was occasionally apparent in the water supplied by the Grand Junction Company.

WHITBY WATER-WORKS COMPANY.—At the half-yearly meeting of the shareholders of this company, held on Tuesday, the 4th, Mr. Thomas Thistle in the chair, a dividend of 7½ per cent. was declared. The retiring directors were re-elected, and Mr. G. F. Cumberland, of the York City and County Bank branch at Whitby, was chosen auditor in the place of Mr. Edward Kirby, of Middlesborough, who has resigned.

EDINBURGH AND DISTRICT WATER TRUST.—At the meeting of this body on the 13th inst., it was resolved to remit to the Law Committee to consider the expediency of memorializing the Lord Advocate to introduce a declaratory bill in the ensuing session of Parliament for the purpose of having the Municipal Corporations (Mr. Leeman's) Act extended to Scotland; the governing bodies of Edinburgh, Leith, and Portobello, respectively, so far as regards water supply, declared to mean the Edinburgh and District Water Trust, and in Scotland, the "owners" and "ratepayers" entitled to vote, declared to be the persons entitled to vote in municipal elections; and to report.

SEWAGE OF PARIS.—A large company is being constituted in Paris, under favourable financial auspices, for the exploitation of the concession obtained last June of sewage to be delivered by the Paris Municipality on the plain of Gennevilliers. The two large intercepting sewers, discharging at Clichy and Saint Denis, yield a combined volume to the Seine of 200,000 cubic metres daily. Of this 87,000 cubic mètres are now to be discharged on the plain of Gennevilliers, and of this total, four-fifths are included in the concession for 30 years. The municipality have already put down pumps to raise the sewage to the requisite height; and, on its side, the society is laying out and preparing the 400 hectares (nearly 1000 acres), which they have covenanted to submit for sewage irrigation. It is in contemplation, however, to operate over a far larger area, and utilize a much greater quantity of sewage; and not only that, but to extend their operations to other large towns in France and other countries; as the results of experimental trials, during from three to five years past, warrant the expectation of success in a great industrial enterprise.

WASTE OF WATER AT LIVERPOOL.—At a meeting of the Water and Baths Committee, on the 10th inst., the sub-committee on the waste of water reported that experiments to ascertain the quantity of water wasted, and the best means of remedying the waste, were in progress. So far the experiments had shown that an immense quantity of water was wasted from private fittings and the mains, but how much from each had not yet been determined, and that a great deal of this water might be saved. The chairman said the experiments of the committee might be described as follows:—A water-meter was fixed to the service-pipe of a certain district, and, with a constant supply, the quantity of water which passed through every 24 hours was equal to 36 gallons per inhabitant. After a number of leaks in the pipes had been repaired, the quantity which passed through was only 14 gallons per head in 24 hours. The committee were taking up all the pipes in the houses and fixing stand pipes in the courts, and hoped soon to be able to report that the consumption of the district was only six or seven gallons per inhabitant. The committee, for the purpose of the experiments, had divided Liverpool into 300 districts. They proposed to purchase 25 water-meters, fix them to service-pipes, and change them about once a fortnight, so that twice every year the consumption of water in the whole of the borough would be tested. He believed that by these means they would establish a very fair check upon the waste of water in the town. The results of the experiments so far had exceeded the committee's expectations.

WAKEFIELD WATER-WORKS COMPANY.—On Friday, Feb. 14, the 22nd ordinary half-yearly meeting of shareholders in this company was held in the company's offices—Mr. W. Statter in the chair. The directors report stated that notwithstanding the great advance in the price of coal the half year's profits were such as to enable them to recommend the usual dividend of 9 per cent., clear of income-tax, and also to carry a balance of £2 12s. 8d. to the reserve-fund, which would then amount to £1760 10s. 6d. On the motion of the chairman, seconded by Mr. John Heald, the report was adopted. Mr. Wm. Senior moved a vote of thanks to the directors, and it was seconded by Mr. W. Taylor, and carried unanimously. The chairman, in reply to Mr. W. Taylor, said that the company's bill for extended powers was not being opposed by the corporation of the town, and it was now too late to oppose it. A special meeting was held on the 17th inst., to consider the provisions of the bill now before Parliament for extending the powers of the company. The bill was approved. A meeting of the Town Council was held on the 19th inst., for the purpose of considering two recommendations from the General Purposes Committee—one to the effect that the corporation should enter into negotiation with the water-works company for the purchase of the works and plant of the company, and the other to petition against the company's bill now before Parliament asking for powers to extend their works, &c. It seemed, from the minutes of the committee, that a deputation from the council had had an interview with the company, and had resolved to offer £46 per share for each £25 share paid up, and £23 per share for each £12 10s. paid-up share, which is equal to rather over 20 years purchase, at 9 per cent., and it was intimated that the directors of the company required 25 years purchase. After a short discussion, the minutes of the committee were approved of. It was also resolved to present a petition against the company's bill.

Register of New Patents.

981.—YOUNG, H., gas inspector, and KITT, A., manager, both of The Gaslight and Coke Company, Horseferry Road, "*Improvements in the purification of illuminating gas and in apparatus to be used therefor.*" Provisional protection only obtained. Dated April 3, 1872.

The chief object of this invention is to remove from illuminating gas the sulphur or sulphur compounds which it contains. This object is to be attained either by treating the gas after it passes from the ordinary purifiers, or before it leaves the works, or by passing it through a purifier before it enters or after it has passed through the meter of the consumer. In treating the gas on the works it is passed through a series of purifying vessels consisting by preference of vertical cylinders fitted with a false bottom, and connected at top and bottom with pipes which will allow of the gas passing through the several cylinders in succession from the bottom upwards. These cylinders it is proposed to fill with charcoal either alone or in combination with burnt or unburnt clay. This filling forms a porous medium through which the gas can freely pass. The gas, after being purified as at present in the dry lime and other purifiers, and thereby deprived of the greater portion of its impurities, is ready to be subjected to the improved or supplementary process of purification. For this purpose it enters the first charcoal purifier at the bottom, and passing upwards through the charcoal, leaves therein a portion of its remaining impurities. It then passes off at top and enters a second purifying vessel, and subsequently a third or more if thought desirable. By thus being filtered through columns of charcoal the gas will be caused to deposit the sulphur which it contains, which sulphur may afterwards be removed by lixiviation. When the first column of charcoal is saturated, it is to be thrown out of the series and another brought into connexion therewith, and the process will proceed as before. Instead of applying the purifying material in a dry state, it is proposed in some cases to keep it in suspension in water by constant agitation, and to pass the gas through the water through the purifying material while in suspension.

When applying the invention on the premises of the consumer, a small closed cylinder, fitted with a false bottom, and charged with the charcoal or purifying compound, is connected with the meter, and the gas, as it passes to or from the meter, is caused to traverse through the purifying material.

1038.—MILLS, J. H., College Street, London, "*Improvements in apparatus for generating heat by the combustion of gas.*" Patent dated April 8, 1872.

This invention relates to means of supplying atmospheric air to gas in combustion in such manner and proportion as will tend to perfect the combustion of the gas, thereby greatly intensifying or increasing the heat generated by the combustion of any given quantity thereof, and the following is a simple method of carrying the invention into effect.

Over the nozzle of the burner to be used, and which may be provided with any description or size of aperture required, a hollow cone is fixed or attached, having its apex directed upwards, and is so placed that its bottom periphery will be considerably below the level of the aperture of the burner through which the gas issues into the interior of the cone, the apex of which may be expanded or shaped into any suitable or required form of burner. The gas issuing from the first described burner into the interior of the cone will ascend and pass out of the aperture provided for it in the apex thereof, where it will be ignited, and in its passage will draw the atmosphere in at the bottom of the cone, in the interior of which they will unite, and together pass out at the top for combustion. The passage through which the atmosphere is admitted is so proportioned in relation to the size of the aperture for the exit of the gas as to limit the supply of air to such proportion as will give most beneficial results.

Another method by which the same object is accomplished is as follows:—A hollow bar is constructed of any desired sectional form, and with a horizontal partition traversing its entire length, so as to form therein two chambers, one above or over the other, the atmosphere being admitted into the lower chamber, and the gas to be burnt into the upper. Into this bar burners of the following construction are inserted:—Into the upper plate or surface of the bar, and communicating with the upper chamber into which the gas is admitted, a hollow burner is screwed, provided at the top with any suitable aperture, and from the interior of this burner a small tube passes down through the upper into communication with the lower chamber, into which the air is admitted so as to allow the air to pass up into the interior of the burner, where the gas and it mix, and pass out together at the top for combustion. The quantity of air admitted may be regulated by a cock at the end of the bar, and when desired may be increased by forcing it in by a fan or other suitable contrivance, or steam may be admitted either alone or in conjunction with air.

It will be obvious that any number of either description of these burners may be placed side by side so as to form together a heating surface of any required area, and in such combination will form and may be used as cooking stoves or for various heating purposes, and on a larger scale, and combined with the proper settings, may even be used as furnaces for steam boilers. Either kind of burner described may be used alone or in conjunction with the other, in which latter case the pipes or hollow bars in which the burners are fixed are placed side by side, or may even be formed together, so that either description of burner, or both together, may be used as occasion may require.

1327.—CHRISTY, T., jun, 155, Fenchurch Street, London, "*Improvements in the treatment of ammoniacal and other liquor of gas-works, sewage, and other waters containing foreign matters in suspension or solution in order to obtain useful products therefrom.*" A communication. Patent dated May 2, 1872.

This invention relates to an improved process of treating liquids, such as ammoniacal water from gas-works, stagnant water, sewage waters, and other waters containing foreign matters in suspension or solution, the object being to extract such matters and obtain them in a comparatively solid or condensed form, in which they may be used or prepared for use as commercial products.

The liquid matters are treated at the ordinary temperature, and the agent employed to effect the required extraction or condensation is silica, such as fluorure of silicium (Si Fl_2), hydrofluosilicic acid (2 Si_2 3 H Fl), chloride of silicium (Si Cl_2), and the alkaline soluble silicates may be used, care being taken that the silica is used in such a form as to be capable of penetrating the entire liquid mass and of combining with the water, thereby forming a hydrate which agglomerates the substances suspended or dissolved in the liquid.

The matters thus agglomerated by the agency of the silica are presented in a comparatively solid or condensed form, and may afterwards be further solidified or condensed by exposing the mass to the action of the atmosphere and allowing it to part with its excess of water. The hydrate formed as described loses the excess of water at the ordinary temperature, and will then leave a crystalline deposit composed of useful matters. This deposit forms a raw product the obtaining of which constitutes the object of the present invention. Ordinary soluble alkaline silicates may advantageously be used, such as silicate of soda or silicate of potass.

1378.—LAKE, W. R., Southampton Buildings, London, "*Improvements in electric torches for lighting gas.*" A communication. Provisional protection only obtained. Dated May 6, 1872.

This invention relates to hand torches for lighting gas by the generation of an electric current, and consists in an electric torch complete in itself, both in the generation and liberation of the electric spark; that is to say, a torch that is independent of the gas-burner or fixtures to which the gas-burner may be attached, or any medium independent of the torch itself, except the hand. And further consists in a torch constructed with a chamber or deflector for receiving the escaping gas and mixing it with the air so as to light the gas with the chamber or deflector away from or above the gas-burner.

1413.—SWAIN, S., Bradford, Yorkshire, "*Improvements in gas-fittings.*" Provisional protection only obtained. Dated May 9, 1872.

This invention relates to improved joints in connexion with the pendant or other moveable lamps employed to illuminate shop-fronts and exteriors of public buildings. Instead of the usual taper stopper or plug joint, which by reason of constant removal so destroys the joint as to cause loss of gas through leakage, the joints are constructed with a dish or other receptacle cast round the plug or the socket, in which dish is deposited mercury. Attached to the "head" of the plug or socket is a ring or tube, the lower portion of which dips into the mercury contained in this dish, and so forms a perfectly tight joint or trap, preventing the escape of gas when the stopper or plug is faulty. When the lamp is removed, a small cap is placed over the socket and the receptacle containing the mercury.

1420.—CORNISH, K. H., Mayfair, London, "*Improvements in apparatus used for the manufacture of gas, applicable also to that employed for the distillation of paraffin and other volatile fluids.*" Patent dated May 10, 1872.

This invention has for its object the cleansing of the pipes which convey gas and other products of distillation from the retorts in which they are evolved to the vessels in which they undergo purification. For this purpose steam in a highly superheated state is employed. In fitting the apparatus to the stand-pipe, H pipe, and dip pipe of the gas-retorts in ordinary use, a gas-tight stop-cock or tap is screwed or otherwise suitably fixed into the H or bridge-pipe, somewhere about its centre. The internal diameter of this stop-cock need not exceed one inch for an ascension or stand-pipe having an internal diameter of four inches. A small stop-cock is also screwed into the stand-pipe close to the neck of the retort. On admitting superheated steam into the H-pipe through the larger of these stop-cocks, the tar accumulated in the ascension-pipe is forced into the retort with great rapidity, while that formed in the descending or dip-pipe is forced with equal rapidity into the hydraulic main. The small stop-cock in the ascension-pipe should be opened before the superheated steam is admitted; its use is to indicate the state of the interior of the pipes during the operation. When the pipe is clean the steam will issue in a white jet, and no more steam need be admitted into the pipe. It is preferred to use this small stop-cock, though it is not absolutely essential.

If common steam is used, the mouth of the retort must be opened, and the retort cooled down, but with highly superheated steam this is not necessary, and the operation may be performed with perfect safety during the process of distillation, for with highly superheated steam an explosion is impossible, since it has reached its maximum of expansion before its admission into the pipes and retort.

Any ordinary superheating apparatus may be used, but it is preferred to employ a portable apparatus in which gas burners on Bunsen's principle heat the boiler, and bring the iron coil in which the steam is superheated to a red heat.

The "bonnets" or caps at the upper ends of the ascending and descending pipes should be screwed or otherwise fastened down. The pipes proceeding from retorts used for distilling paraffin or other volatile fluids are to be fitted with taps in a manner similar to that above described.

When the invention is used for gas-retorts where the construction of the ascension, bridge, and dip pipes admits of it, the following cheap and simple method of applying the superheated steam is adopted:—Instead of screwing taps into the bridge-pipe and the neck of the ascension-pipe, holes are bored into the caps of the pipes at their centres, and into the neck of the ascension-pipe. Those bored through the caps should be about a quarter of an inch larger than the external diameter of the pipe, by which the superheated steam is discharged into the retort-pipes, the discharge of the superheater being packed so as to fit the holes in the caps of the ascension and other pipes. That bored in the neck of the retort should not be more than a sixteenth of an inch in diameter, and may with advantage be bored out to a twelfth of an inch for the first eighth of an inch, and tapped so that the plug with which it is closed when not in use may be screwed in securely; this screw plug may with advantage be made with a flat thumb-piece. The holes in the caps must be stopped with suitable plugs capable of being securely fastened down and instantaneously detached.

1457.—Morris, W., Kent Water-Works, Deptford, "*An improved mode or method of, and means for establishing a communication with water or gas mains.*" Patent dated May 14, 1872.

This invention consists of a peculiar combination of screwed ferrule, screwed plug, and internal screwed T junction piece, whereby a simple mode of connecting service-pipes with mains whilst under pressure, and without loss or waste is effected, the hole in the main being first drilled and tapped by any apparatus constructed to accomplish it without escape of gas or water.

1461.—Fearley, W. G., West Brompton, "*Improvements in apparatus for making illuminating gas, heating apartments or chambers, and other purposes.*" Patent dated May 14, 1872.

Over a furnace (which may be withdrawn for cleaning) is a retort surrounded by flues, and made at the lower part circular to correspond with a tubular feed way or doorway, closed by screwing thereon a flanged door or cap turning in a ring, connected with the doorway by pins or screws passing through slotted adjustable hinges. The products pass from the retort through pipes having safety-valves to a condensing coil, and thence to a vessel where the heavy products remain, and the gaseous products flow through a washing chamber to a purifier containing purifying or filtering medium, placed between perforated plates spaced by eyes and studs, and arranged to cause the gas to rise diagonally from plate to plate through the purifier. The cover of the purifier has a rib or fillet which engages in a groove and the joint is packed.

The cock in the main may be connected with a regulator by wire ropes or other connexions passing over the regulator drum. The regulator has a toothed wheel and pawl, or a spring catch for locking, so that the main cock can only be turned through the medium of the regulator. For heating rooms, air is conveyed through pipes passing through the furnace or through chambers connected with it. The furnace may have an oven on one side, and a boiler on the other.

1475.—Allan, R., Glasgow, "*Improvements in reflectors for gas and other lights.*" A communication. Provisional protection only obtained. Dated May 15, 1872.

The feature of novelty which constitutes this invention is in the formation of the reflectors of corrugated or fluted glass or metal, backed with tin, enamel, or other reflecting material.

1492.—Christy, T., jun., and Borrownicki, A., 155, Fenchurch Street, "*Improvements in the treatment of ammoniacal liquors of gas-works in order to obtain valuable products therefrom.*" Patent dated May 16, 1872.

The inventors propose to utilize, not only the ammonia, but also other of the substances contained in ammoniacal liquor. These substances they arrange in groups corresponding with their chemical radicals. 1. Azoted substances whose radical is azote combined with hydrogen (ammonium Az H_3). 2. Azoted substances whose radical is azote combined with carbon (cyanogen Az C_3). 3. Various substances present in ammoniacal waters or in the product obtained in working according to the invention described in Patent No. 1827, dated May 2, 1872.

1532.—Foulis, W., Glasgow, civil engineer, "*An improved exhauster and blower for gas and other aëriform bodies.*" Provisional protection only obtained. Dated May 20, 1872.

This invention, which relates to an improved arrangement or construction of apparatus for exhausting or blowing gas or other aëriform bodies, consists of a pair of hollow cylinders through which a revolving shaft passes, and on those portions of this shaft which are situated within the cylinders eccentric revolving pistons are fixed in positions diametrically opposed to each other. A chamber is formed on each cylinder, which contains a hanging valve or abutment, the extreme or terminal edge of which is always in contact with the eccentrically revolving piston; thus a constant separation is maintained between the pressure and exhaust sides of the apparatus, as the hanging valve follows the motion of the eccentrically revolving pistons. On either side of the chambers containing the hanging valve ducts or passages are arranged, these being respectively drawing or exhausting and forcing passages. The motions of the hanging valve are caused to follow truly those of the eccentric pistons by guide cams situated on that portion of the revolving shaft which extends outside or beyond the cylinders, being coupled thereto by suitable levers; and by means of the diametrically opposed positions of the pistons the exhausting or forcing action is rendered continuous.

1545.—Messenger, T. G., Loughborough, "*Improvements in the coupling of pipes and in the fittings thereof, and in valves to use in connexion therewith, and for other similar purposes.*" Patent dated May 21, 1872.

These improvements consist in forming the socket at one or both ends of each length of pipe with a flange or ring having lugs or their equivalent, and having holes or slots at the outer end; or with one or more pairs of tabs or ears. The interior of the socket may be of the same diameter for the whole of its length, or divided into two lengths of different diameters, the length nearest the pipe being of such diameter as to admit the end of the next pipe. The outer end is of larger diameter to receive the packing. The flange is slipped on the end of the pipe to be inserted, and the two are secured by nuts and bolts passed through the holes or the spaces formed by the ears; or the end entering the socket is cast with lugs or their equivalent to compress the packing. A double socket is employed, one or both ends of which receive loose rings with lugs to connect spigot ends, or a single socket is prepared at one end to receive packing, with a metal ring placed between it and the packing, upon which loose ring with lugs or their equivalent fitting in the other end presses. A casting is also used having a chambered liquid space with sockets to receive pipes, and having a casting with a corresponding number of rings with lugs, so that a number of joints may be made at one operation. These liquid spaces may be provided with a valve or valves to admit or regulate the flow of liquid into the chambers, or a water space or chamber is made with a valve or valves working in it, to which is attached sockets to connect therewith a pipe or pipes on either or both sides. These valves are opened and closed by worm and quadrant, the spindle working through a gland or by a screw working through the gland direct. To attach a socket or valve to a flat surface or to the side of another pipe a hole is cut and the socket or other connexion is secured to it by screw bolts or their equivalents.

1656.—Lake, W. R., Southampton Buildings, London, "*Improvements in metallic packing for making steam, air, gas, or water-tight joints.*" A communication. Patent dated May 31, 1872.

This invention relates to an improved metallic packing for making joints in cylinders, pipes, and other apparatus for holding and conducting fluids, and consists in using a rod of copper, lead, or other compressible metal rolled or drawn into the proper form, so that the parts to be connected being forced against the edges of the packing, the same may be readily compressed to form a joint impervious to air, steam, gas, water, or other fluid.

1663.—Hollands, E. R., Newington Green, Maker, W., South Hornsey, Jefferies, C. H., South Hornsey, "*Improvements in meters for measuring water and other fluids.*" Patent application dated June 1, 1872. (Void by reason of the patentees having neglected to file a specification.)

This invention has for its object improvements in meters for measuring water and other fluids. For this purpose a meter is formed with two measuring chambers, each having an inlet and an outlet passage fitted with valves. The inlet and outlet valves for each chamber are connected to lever arms carried on an axis in such manner that when the inlet valve of either chamber is open the outlet valve of that chamber is closed, or if the outlet is open the inlet is closed, and the lever arms are also so connected to the axis that when the outlet from one chamber is closed the other is open, and *vice versâ*. To the lever arm, which is connected to the outlet valve of one chamber, is affixed a float, when the float is in its lowest position the inlet to the chamber containing the float is open and the outlet is closed, the chamber then fills with water, the float during this time being prevented from rising by a catch; when the chamber is full, the pressure or weight of the water in the chamber by acting upon a diaphragm or float releases the catch, the float then at once rises and changes the position of the valves, and at the same time the lever is again caught by the catch. The chamber in which is the float then empties whilst the other chamber fills, and so soon as this latter chamber is full the water in it acting upon a float or diaphragm again releases the catch, and the float which then acts as weight drops, and so again reverses the valves, and the same operation is repeated. The lever arms carried by the axis before mentioned are so connected to the stems of the several valves that the inlets are closed before the outlets are opened, or the outlets closed before opening the inlets.

In order to ensure that each chamber of the meter shall empty each time that its outlet valve is opened, the meter is arranged to discharge into a cistern in which is a float, which, if the cistern becomes full, either shuts off the inlet of water to the meter or prevents the movement of the diaphragms or floats; the proper working of the meter is thus ensured.

1671.—Brown, J., Burnley, "*Improvements in the construction of gas-meters.*" Provisional protection only obtained. Dated June 3, 1872.

The object of this invention is to prevent the water being removed from the gas-meter fraudulently, or from being blown out by the pressure of the gas; also to obtain an uniform registration of the gas passing through the meter under various pressures, and to keep the compartment in which the upright shaft, and wheel, and worm revolve free from water and gas.

In performing this invention the front or circular plate of the meter is made in several compartments; the gas to be measured enters the first compartment, which contains the float, and passes down a pipe into the bottom compartment, then up another pipe to the measuring drum, which is of the usual construction, whence it passes to the outlet-pipe. The water enters another compartment and fills the chamber in which the drum revolves, it also passes into the chamber containing the float, and then into the bottom chamber in which is the overflow screw.

Another part consists in driving the upright shaft by spur wheels instead of by worm and wheel, as usual, and in placing the registering index in the compartment in which the upright shaft revolves, thereby economizing space.

1673.—Wentworth, S. T., Queen Street, Cheapside, "*Improvements in burners for consuming gas and air combined.*" Patent dated June 3, 1872.

This invention relates to improvements in what are generally known as Bunsen's gas-burners, which are arranged to consume a mixture of gas and air combined for heating purposes. In order to prevent the ignition of the gas at the point where it enters the passage with the air below the burner, a diaphragm (by preference) of wire gauze or fine perforated metal is interposed. By this means when the gas is turned down, the flame from the burner is prevented from passing downwards so as to ignite the gas jet, as is commonly the case.

1679.—Harrison, C. W., and Harrison, A. H., High Holborn, "*Improvements in the manufacture of gas for lighting and heating purposes, and in the apparatus employed therein.*" Patent dated June 3, 1872.

This invention relates to or consists in charging atmospheric air with the vapour of certain hydrocarbon liquids (treated or prepared for the purpose as described), by which means the air is converted into inflammable gas or vapour remarkable for its richness in carbon, and well adapted for lighting and heating purposes. It also relates to or consists of improvements in apparatus for charging or impregnating atmospheric air with the vapour of the said hydrocarbon liquids.

The hydrocarbon liquid employed in a general way for these purposes is petroleum, although other like or analogous mineral oil or spirit may be used It is, however, preferred to use petroleum of about specific gravity 0·670. In this petroleum or other suitable oil or spirit (hereafter called the hydrocarbon liquid) certain suitable liquids are mixed, various oxidized essences and resins are dissolved or mixed in solution, which possess the property (when so mixed) of carburetting or increasing the proportion of carbon in the hydrocarbon liquid, and thereby rendering it capable of more effectually converting the air passed through it into inflammable gas or vapour capable of producing a light of great brilliancy and (under suitable conditions) a heat of great intensity. Amongst the numerous substances used for this purpose may be mentioned the following as being the principal and most preferable—viz.: Gum resins, such as those of the *euphorbia*, *eucalyptus*, and *ficus* genera, and others approaching them in their chemical composition, resins having the composition of oxides of the hydrocarbons represented (or nearly so) by the formula (C_{40} H_{32}), camphor and other oxidized essences of the hydrocarbon series, tar derived from any source, products derived from the distillation of the following substances—viz.: (1) Resins; (2) wood tar, from which are obtained paraffin (C_{48} H_{30}), and eupione (C_5 H_3); (3) coal tar and pitch, from which are obtained aniline (C_{12} H_7n), benzol (C_{12} H_6), toluol (C_{14} H_8), cumol (C_{18} H_{12}), naphthaline (C_{20} 8_2), and generally the homologous hydrocarbons from coal tar; (4) bituminous coal, from which are obtained coal naphtha; and (5) Boghead, asphalte, peat, waste oil, and fatty matters, from which are obtained paraffin oil, creosote (C_{21} H_{16} O_4), &c. In short, any like or analogous product or substance having the necessary properties for carburetting or increasing the proportion of carbon in the hydrocarbon liquid, as described, may be used for this purpose.

Any one or more of the above carburetting ingredients may be so used for the purpose described, either alone or in combination with any one or more of the others, the quantity added to the hydrocarbon liquid being regulated according to the degree of carbonization it is desired to impart thereto.

And in order that the hydrocarbon liquid may take up in solution as much as may be required of the carburetting ingredients, the hydrocarbon liquid is sometimes warmed or heated after these substances have been added thereto, by which means the carburetting ingredients are rendered more soluble, and the hydrocarbon liquid is thereby enabled to take up and hold in solution a much larger proportion of the carburetting substances than it otherwise could do, a result which it is found very desirable to achieve, as the inflammable gas or vapour made from the hydrocarbon liquid so treated or prepared is remarkable for being highly carburetted.

For the purpose of facilitating the solution of the gum resins, or other analogous substance or substances, they are reduced to powder before being put into hydrocarbon liquid, in which they are then allowed to remain until dissolved. Or, instead of simply mixing the carburetting materials with the hydrocarbon liquid, they are incorporated therewith before it is distilled, and submitted together to the process of distillation. Some of the above products, such as benzole and naphtha, are also used for the purpose of dissolving the gum resins, and other analogous substance or substances. After this process, and when the gum resins and other analogous substance or substances have been so dissolved, they are added in solution to the hydrocarbon liquid for the purpose of carburetting it. These products can therefore be used for either carburetting the hydrocarbon liquid directly by being themselves mixed therewith, or for effecting the same object indirectly by being first used for dissolving the gum resins, and other analogous substance or substances, after which they are together added in solution to the hydrocarbon liquid.

The process by which atmospheric air is charged with the vapour of the hydrocarbon liquid prepared as described, for the purpose of making inflam-

mable gas or vapour according to this invention, consists in forcing or drawing atmospheric air into the hydrocarbon liquid, and causing it to pass through the same in such manner as to bring a large amount of air surface into absolute contact with the liquid.

During the passage of the air through the hydrocarbon liquid it vaporizes, and takes up or becomes impregnated with a certain portion thereof, which it retains, and thus the combined vapours pass on together in the form of inflammable gas or vapour, either to a suitable holder for storeage and future use, or direct to suitable burners for immediate consumption. The above method may be varied by bringing together minute streams or particles of the hydrocarbon liquid and currents of air, which air will in like manner become charged or impregnated with the vapour of the hydrocarbon liquid, and thereby be converted into inflammable gas or vapour.

1682.—DUGDALE, A., Paris, MINGRAT, J., Brussels, and VANSTEENKISTE, A., Brussels, "*Improvements in the manufacture of steam-cocks, water-cocks, and gas-cocks.*" Provisional protection only obtained. Dated June 4, 1872.

The improvements are as follows:—With the body of the tap or cock a cylinder is cast, within which the valve moves and is non-floating, it is actuated by a screw-shaft and fly-wheel, and is so arranged that when raised the body of the cock forms a continuous channel or continuation of the pipe, since the valve alone closes the passage. The diameter of the cylindrical part, being superior to that of the passage of the cock, no matter what position the valve occupies it is sufficiently supported to be unaffected by the pressure of steam, and will always descend perpendicularly to its seat. The effects of pressure or condensation are thus avoided, as the steam has a direct passage whether the cock is partly or completely open, which is not the case with existing valves.

1683.—HACK, T., West Middlesex Water-Works, Hammersmith, "*Improvements in pipe connexions.*" Provisional protection only obtained. Dated June 4, 1872.

These improvements have for their object the regulating the constant or other supply of water, air, steam, liquids, or gases, and consist in furnishing to suitable pipes regulating taps and sometimes ferrules, either one or both of them so constructed that by means of convenient cams and pistons the supply of water, &c., can be regulated at pleasure, or when desired stopped off. The improvements may be carried into effect by constructing the regulating tap of a metal cylinder, having a suitable metal plug or piston working therein, and acting on an india-rubber collar in lieu of the ordinary stuffing-box or packing. The top of such piston or plug for the purposes of raising it is supplied with a metal spindle furnished with suitable cams working in a hollowed cavity made for the purpose, the spindle having a suitable handle whereby it can be actuated, and when turned partially to the right or left the water, &c., supply is regulated; or sometimes a plain piston is used, furnished with suitable screwed nut or cap, which, when screwed down, presses the end of the piston on the surface of the projecting valve face of the ferrule, and thus the water, &c., supply is stopped off. The ferrule may be made also of metal, having thereon a projecting valve face, intended, when applied in combination with the regulating tap, to act as a valve, and so help to regulate the passage or stoppage of the water, air, &c. When it is desired to use these improvements in pipe connexions, for the purposes of the more readily cutting off or stopping the supply of water or gas from the street to houses, it is preferred to use the piston actuated by the screwed nut or cap in conjunction with the ferrule as described, and this is conveniently done by attaching to the ordinary service-pipe or main the ferrule, screwed into a suitable cylinder so formed to receive it at one end and the piston at the other, and furnished with a branch or pipe having a union joint or otherwise, so that it may be readily connected with the house communication-pipe.

1687.—CAREY, R., Brixton, "*Improvements in rotary pumps, applicable also as fluid-meters.*" Patent dated June 4, 1872.

This invention has more especially for its object to simplify the construction of rotary pumps for exhausting gas-retorts, or for pumping air for ventilating and other purposes, which pumps consist of a cylinder having an inlet passage and an outlet passage branching out from it. The cover of one end of the cylinder carries a central pin, which forms an axis for three, or it might be other number of radial flaps to turn round freely. These flaps extend from the central pin to the circumference of the cylinder, and work fluid-tight, or nearly so, against the circumference and the end covers of the cylinder. In the cover of the opposite end of the cylinder is a circular recess eccentric to the cylinder; in this recess is a disc having a number of equidistant radial grooves cut in its face, one for each flap. Projecting from each flap is a pin carrying a friction roller or sliding block to enter one of these grooves. The disc is carried by an axis passing out through a stuffing box in the end cover. When the apparatus is to be used as a pump, this axis is revolved continuously, and the flaps are thereby caused to turn round upon the central pin to which they are pivoted, but with an intermittent motion, as the rollers or blocks carried by the flaps will at one time be near to the centre of the revolving disc, and will be moved slowly, whilst at other times they will be near to the circumference of the disc, and will then be moved quickly. The flaps are by this means caused to sweep quickly round the greater part of the circumference of the cylinder, whilst they move but slowly past the remaining portion of the circumference. The inlet passage is situated on one side of this portion of the circumference, whilst the outlet passage is on its other side, and they are at such a distance apart that there shall always be one or other of the flaps at rest, or nearly so, between the inlet and outlet passages. If the apparatus is to be used as a meter, a counting apparatus is applied to the axis of the disc, to record the number of its revolutions. It is preferred that each flap should carry or form a filling block, by which the space between two flaps when thus at rest, or nearly so, and in their nearest position to one another, should approximately be filled up.

1707.—VINCENT, D., Erith, manager of gas-works, "*Improvements in apparatus for distributing liquid, particularly applicable to gas-scrubbers.*" Provisional protection only obtained. Dated June 5, 1872.

This distributing apparatus consists of a water-wheel, below which is a dish into which the water falls. The revolving motion of the wheel is transmitted to the dish and to radial arms attached to it. These are perforated, and as they revolve the water falls through the perforations and is distributed in the scrubber.

APPLICATIONS FOR LETTERS PATENT.

376.—RYDILL, G., Dewsbury, "Improvements in fuel economizers, feed-water heaters, and surface condensers; also for heating air and for other purposes." Jan. 31, 1873.
385.—BROEL, J., South Kensington, "Improvements in apparatus for lighting and heating." Jan. 31, 1873.
389.—PLATT, G., Birmingham, "A new or improved mode of imparting ornamental effect to chandeliers, branches, and other ornamental gas-fittings." Feb. 1, 1873.
405.—JOHNSON, J. H., 47, Lincoln's Inn Fields, "Improvements in the treatment of essential oils with a view to their employment as fuel for heating purposes." A communication. Feb. 3, 1873.
409.—MEWBURN, J. C., 169, Fleet Street, London, "An improvement in cocks for water-meters and other like purposes." A communication. Feb. 4, 1873.
430.—TAYLOR, J., gas manager, BUCKLEY, S., engineer, and CHADWICK, T. H., gas collector, Oldham, "Improvements in machinery or apparatus for drawing and charging retorts used in the manufacture of illuminating gas." Feb. 5, 1873.
435.—HARRISON, C. W., High Holborn, "Improvements in the treatment and use of air for the manufacture of gas for lighting and heating purposes, and in the apparatus employed therein." Feb. 5, 1873.
442.—DEAN, W., Bradford, gas engineer, and LANCASTER, R., Shelf, near Halifax, engineer, "Improvements in gas-regulators." Feb. 6, 1873.
447.—BROWN, R., Edinburgh, "Improvements in and connected with stop-valves or taps." Feb. 7, 1873.
448.—ROBERTSON, J., Glasgow, "Improvements in motive-power and blowing engines, parts of which are applicable to meters for measuring liquids." Feb. 7, 1873.
458.—LAPAROUE, A., 7, York Terrace, Acklam Road, Westbourne Park, "Improvements in the production of gas or vapour from hydrocarbon oils or combinations thereof with other matters, and in means or apparatus employed in utilizing the same." Feb. 7, 1873.
518.—RICHARDS, W., Burton Road, Brixton, gas engineer, "Improvements in machinery and apparatus for charging and drawing retorts used in the manufacture of gas." Feb. 12, 1873.
519.—RAMSDEN, J. C., Halifax, "Improved means or method of and apparatus for transmitting heat from furnace or other dry heated gases to atmospheric air or to other gases." Feb. 12, 1873.
523.—HARRISON, C. W., High Holborn, "Improvements in obtaining oxygen." Feb. 12, 1873.

GRANTS OF PROVISIONAL PROTECTION.

230.—ROBEY, J., Manchester, "A new or improved charcoal to be used for purifying sewage and other foul waters, and for disinfecting and deodorising purposes." Jan. 20, 1873.
252.—FOSTER, B. H., Newcastle-on-Tyne, "Improvements in the construction of motive-power engines driven by steam, compressed air, or other elastic fluid, or by water." Jan. 22, 1873.
266.—JACOBSEN, P., Redfern House, Edinburgh, "Improvements in treating sewage, for the purpose of making manure and purifying sewage." Jan. 23, 1873.
274—PATTERSON, R. H., Hammersmith, "Improvements in the purification of coal gas, and in the production of alkaline sulphides to be employed for such purpose." Jan. 23, 1873.
325.—IMRAY, J., Southampton Buildings, Chancery Lane, London, "Improvements in the means of subjecting substances to heat, for effecting continuously drying, roasting, calcining, evaporating, distilling, gas-producing, and other like operations, and apparatus therefor." Jan. 28, 1873.
331.—LATHAM, B., 7, Westminster Chambers, Victoria Street, Westminster, "Improvements in purifying sewage, and treating products obtained therefrom for the production of manure." Jan. 28, 1873.
341.—JOSLIN, W., Lower Norwood, Surrey, "Improvements in furnaces, and in the method of charging them with fuel, to improve its combustion and prevent smoke." Jan. 28, 1873.
385.—BROEL, J., South Kensington, "Improvements in apparatus for lighting and heating." Jan. 31, 1873.
389.—PLATT, G., Birmingham, "A new improved mode of imparting ornamental effect to chandeliers, branches, and other ornamental gas-fittings, and which said improvements are also applicable to chandelier and general fittings, the means of illumination being otherwise than that of gas." Feb. 1, 1873.
409.—MEWBURN, J. C., 169, Fleet Street, London, "An improvement in cocks for water-meters and other like purposes." A communication. Feb. 4, 1873.
430.—TAYLOR, J., gas manager, BUCKLEY, S., engineer, and CHADWICK, T. H., gas collector, Oldham, "Improvements in machinery or apparatus for drawing and charging retorts used in the manufacture of illuminating gas." Feb. 5, 1873.

NOTICES TO PROCEED.

2814.—KING, R., Wolverton, Bucks, engineer, "An improved gas-regulator, which may also be used to regulate the flow of water and other fluids." Sept. 24, 1872.
2855.—M'KELVIE, J., Edinburgh, coalmaster, "Improvements in the manufacture of illuminating gas." Sept. 27, 1872.
2874.—SWAIN, S., Bradford, Yorkshire, "An improved joint for connecting the supply-pipe with the pendant-pipe of moveable pendant lamps employed to illuminate shop-fronts or the exterior of buildings, and other like uses." Sept. 30, 1872.
2948.—AITKEN, P., Glasgow, "A new or improved gas-cooking and heating apparatus or stove. Oct. 7, 1872.
3254.—WEEMS, J., Johnstone, N.B., engineer, "Improvements in gas-meters, part of which is also applicable to gas-generators." Nov. 2, 1872.
3356.—MANNING, J. A., Inner Temple, London, "Improvements in the treatment of human fœcal matters, and in the apparatus or means employed therein." Nov. 11, 1872.
3735.—JAYNOR, A., Regent's Park, "Improvements in the construction of automatic telegraphs, to be worked by air, steam, or gas." Dec. 9, 1872.
3905.—RADFORD, J., Bradford, brassfounder, "Improvements in steam, gas, water, or fluid taps." Dec. 24, 1872.
210.—DAVIES, R. V., Old Street, St. Luke's, "A new or an improved apparatus for preventing the waste of water used for water-closets and domestic purposes." Jan. 18, 1873.
230.—ROBEY, J., Manchester, "A new or improved charcoal to be used for purifying sewage and other foul waters, and for disinfecting and deodorizing purposes." Jan. 20, 1873.
329.—RYDILL, G., Dewsbury, "Improvements in steam-boilers, steam-generators, furnaces, and apparatus for generating steam, heating fluids, gases, and for other purposes; for obtaining motive power and applying heat." Jan. 28, 1873.

PATENTS WHICH HAVE PASSED THE GREAT SEAL.

2296.—HASELTINE, G., Southampton Buildings, London, "Improvements in machines for the manufacture of gas." A communication. Aug. 1, 1872.
2335.—BRAY, G., Leeds, "Improvements in gas-burners." Aug. 6, 1872.
2350.—SILVER, T., Moorgate Street, London, "An improved air-rarifying lamp-burner." Aug. 7, 1872.
2421.—BLACKHAM, J. J., Birmingham, "Improvements in gas-stoves." Aug. 14, 1872.
2453.—EMMENS, S. H., 8, Old Jewry, London, "Improvements in apparatus for producing heat and light." Aug. 16, 1872.
2460.—LAKE, W. R., Southampton Buildings, London, "Improved apparatus for automatically igniting gas." A communication. Aug. 19, 1872.
2487.—YOUNG, W., manager of the chemical works, Magdalen Bridge, SCOTT, A., manager of the Musselburgh Gas-Works, and STEPHENS, W. W., Leith, "Improvements in the destructive distillation of coal, shale, and other bituminous substances for the production of illuminating gas and of oils." Aug. 21, 1872.
2528.—PARKER, J. F., chemist, and WADE, A., Birmingham, stock broker, "Improvements in the manufacture from coal and petroleum of hydrocarbon gas or gas for illuminating and heating." Aug. 26, 1872.
2538.—SCOTT, H. Y. D., Ealing, "Improvements in the treatment of sewage, and in the preparation of manures therefrom." Aug. 26, 1872.
2711.—RUCK, W. D., Greenwich, "Improvements in the manufacture of gas." Sept. 12, 1872.
3299.—LAKE, W. R., Southampton Buildings, London, "Improvements in electric torches for lighting gas." A communication. Nov. 7, 1872.
3302.—HOWLAND, T. A., and M'KNIGHT, C. G., Providence, Rhode Island, U.S.A., and 8, Southampton Buildings, London, "Improvements in the manufacture of gas, and in apparatus therefor." Nov. 22, 1872.
3334.—THORNELOE, G., 34, London Wall, gas engineer, "An improved dip-pipe, forming part of gas apparatus for use in making gas." Nov. 25, 1872.
3602.—KAY, A., Manchester, "Improvements in steam-pumps for hydraulic purposes." Nov. 30, 1872.
3642.—SIEMENS, C. W., 3, Great George Street, Westminster, "Improvements in smelting iron and steel, and in furnaces and apparatus employed in connexion therewith, parts of which improvements are also applicable to regenerative gas-furnaces generally." Dec. 3, 1872.
3796.—SHANKS, J., Barrhead, Renfrew, sanitary engineer, "Improvements in water-supply apparatus for water-closets, urinals, and washing and similar apparatus." Dec. 14, 1872.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

196.—PLESSNER, J. M., "Improvements in apparatus for and in the treatment of liquid fuel, and in the application thereof to prime movers." Jan. 22, 1870.
228.—VARLEY, C. F., and ROCHUSSEN, T. A., "Improvements in producing heat and light." Jan. 25, 1870.
259.—CATHELS, E. S., and TERRACE, D., "Improvements in apparatus used in the manufacture of gas, part of which apparatus is also applicable for ventilating mines, for promoting combustion, and for pumping, measuring, and forcing fluids." Jan. 28, 1870.
235.—WERKMEISTER, A., "An improved liquid-meter." Jan. 31, 1870.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

356.—SPENCER, T., "Improvements in the mode of and apparatus for filtering water and other fluids." Feb. 5, 1866.
372.—RICHARDS, W., "Improvements in means or apparatus for measuring liquids." Feb. 7, 1866.

Share List
OF
Metropolitan Gas and Water Companies.

(*Corrected by Mr.* F. N. GOLDING, *Sun Court, Cornhill, from the latest Stock Exchange Quotations.*)

Number of Shares issued.	Amount per Share.	Name.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Latest Quotations.
	£	GAS COMPANIES.	£ s. d.	£ s. d.	£
8000	20	Anglo-Romano	20 0 0	10 0 0	20 — 22
5000	20	Bahia (Limited)	20 0 0	3 0 0	10½— 11½
1000	20	Do., preference	20 0 0	10 0 0	25 — 27
750	20	Do., do., redeemable	20 0 0	10 0 0	22 — 24
40000	5	Bombay (Limited)	5 0 0	6 15 0	5½ — 6
10000	5	Do., third issue	4 0 0	6 15 0	⅛—1 pm.
10000	20	British (Limited). (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbridge., and Holywell.)	20 0 0	10 0 0	33 — 35
7500	20	Cagliari (Limited)	20 0 0	7 0 0	15 — 16
150000	10	*Chartered* A shares	10 0 0	10 0 0	14¼— 14⅜
20000	10	Do., A	4 0 0	10 0 0	2¾— 3¼ pm.
10000	10	Do., B shares, 4 per cent. max.	10 0 0	4 0 0	6¾— 7¼
25000	10	Do., 5 per cent. preference	10 0 0	5 0 0	12½— 13
20000	10	Do., 5 per cent. preference, second issue	8 0 0	5 0 0	2 —3 pm.
20000	10	Do., 10 per cent. preference	10 0 0	10 0 0	19½— 20
12000	25	Do., D shares	25 0 0	10 0 0	48½— 49½
17490	100	*Commercial*	100 0 0	10 0 0	152 —155
20000	20	Continental Union	20 0 0	8 0 0	21½— 22
10000	20	Do., new	10 0 0	8 0 0	¾—1¼ pm.
10000	10	Do., new, 1872	2 10 0	8 0 0	¼—½ pm.
10000	20	Do., preference (Grmny.: Strsbg. France: Cette, Nismes, Montargis Vienne, Roanne, Beaucaire, Rueil, Albi. Italy: Milan, Genoa, Parma, Modena, Alessandria, Messina.)	20 0 0	7 0 0	24 — 26
5000	10	*Crystal Palace District*	10 0 0	10 0 0	15½— 16½
5000	10	Do., preference	10 0 0	6 0 0	10½— 11½
10000	10	Do., new shares	10 0 0	7 0 0	11 — 12
23406	10	European (Limited)	10 0 0	8 0 0	14¼— 14⅜
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	8 0 0	2 —2½ pm.
4054	10	Foreign and Colonial (Limited)	10 0 0	..	10 — 10½
5000	10	Hong Kong (Limited)	10 0 0	10 0 0	13 — 13¼
1560000	100	*Imperial*	100 0 0	10 0 0	159 —162
26000	12½	Do., new shares	12 10 0	7 0 0	15 — 15½
1300	100	Do., bonds	£100	10 0 0	195 —200
56000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	43 15 0	9 2 6	60½— 61¼
3000	40	*Independent*	40 0 0	10 0 0	66 — 68
3000	10	Do.	10 0 0	5 0 0	8 — 9
3000	20	Do.	20 0 0	7 10 0	25 — 26
	10	Do., D	1 0 0	..	..
250000	8k.	*London*	100 0 0	10 0 0	150 —153
£15000	8k.	Do., 1st preference	100 0 0	6 0 0	115 —118
	8k.	Do., 2nd preference	100 0 0	6 0 0	
	8k.	Do., 3rd preference	100 0 0	6 0 0	
£18781	100	Do., 1st preference stock	100 0 0	6 0 0	
£11828	100	Do., 2nd preference stock	100 0 0	5 0 0	
15000	5	Malta and Mediterranean (Limited)	5 0 0	5 0 0	3¼— 3⅞
6000	5	Do., preference	5 0 0	7 0 0	5⅝— 5⅞
20000	5	Mauritius (Limited)	2 0 0	7 0 0	2 — 2¼
25000	20	Monte Video (Limited)	20 0 0	..	24 — 25
8000	10	Nictheroy, Brazil (Limited)	10 0 0	..	2½—2 dis.
30000	5	Oriental (Calcutta)	5 0 0	9 0 0	6¾— 7¼
30000	5	Do., new shares	2 10 0	9 0 0	1—1½ pm.
10000	5	Ottoman (Limited)	5 0 0	nil.	1⅞— 2¼
17500	10	Parà (Limited)	10 0 0	7 0 0	— 10
27000	20	*Phœnix*	20 0 0	10 0 0	31 — 32
360000*l.*	100	Do., new	45 0 0	7 10 0	13—15 pm.
144000*l.*	8k.	Do.	100 0 0	5 0 0	90 — 92
5000	20	*Ratcliff*	20 0 0	10 0 0	31 — 33
34000	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	37 — 39
7359	5	Singapore (Limited)	5 0 0	7 10 0	4¼— 5
2000	5	Do., preference	5 0 0	7 10 0	5⅛— 6
1500	32½	Shanghai	32 10 0	12 0 0	30 — 32
4000	50	*South Metropolitan*	50 0 0	10 0 0	83 — 85
4000	12½	Do.	12 10 0	10 0 0	20 — 21
20000	12½	Do., new shares	2 10 0	10 0 0	4—5 pm.
15000	10	*Surrey Consumers*	10 0 0	10 0 0	15½— 16
10000	10	Do., new	7 0 0	10 0 0	4½— 5
9000	4	United General (Limerick)	4 0 0	5 0 0	2½— 2⅝
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	14 — 15
1500	10	Do.	10 0 0	7 10 0	11 — 12
2957	10	Do.	10 0 0	7 0 0	
993	10	Do.	3 0 0	7 0 0	
16000	5	*West Ham*	5 0 0	9 0 0	7½— 7⅝
10000	5	Do., new shares	1 0 0	9 0 0	1—1½ pm.
		WATER COMPANIES.			
60000	10	Berlin	10 0 0	11 10 0	18 — 20
12000	100	Chelsea	100 0 0	6 0 0	116 —118
18000	100	East London	100 0 0	6 0 0	120 —122
10000	50	Grand Junction	50 0 0	8 10 0	78 — 80
5840	25	Do., ¼ shares	25 0 0	8 10 0	39 — 40
2160	25	Do., new do.; maximum dividend, 7½ per cent.	25 0 0	7 10 0	33 — 35
4396	100	Kent	100 0 0	6 0 0	120 —122
5339	100	Lambeth	100 0 0	6 5 0	119 —121
1161	100	Do.	20 0 0	6 5 0	
442	100	New River	100 0 0	8 0 0	170 —180
4443	100	Do.	20 0 0	8 0 0	36 — 38
4000	100	Do., debenture stock, 4 per cent.	100 0 0	4 0 0	95 — 98
3036	100	Southwark and Vauxhall	100 0 0	5 10 0	104 —106
1296	100	Do., preference stock	100 0 0	5 0 0	99 —101
	100	Do., D shares	100 0 0	5 10 0	101 —103
		Do., G shares	..	4 10 0	
	100	Do., new ordinary	..	4 10 0	
1600	100	Do., new ordinary, No. 1	40 0 0	4 10 0	
13913	61	West Middlesex	61 0 0	£6 per sh.	118 —120

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1 in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle and Middlesboro'.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1 (g.m.b.)	—	5 14 6	—	—	—
1½ and 2 inch Socket-pipes	11 0 0	10 10 0	10 10 0	10 10 0	10 10 0
2½ and 3 inch do.	10 10 0	9 15 0	9 10 0	9 15 0	9 15 0
4 and 5 inch do.	10 0 0	9 10 0	9 0 0	9 10 0	9 10 0
6 inches and upwards, do.	9 10 0	9 0 0	8 17 6	9 0 0	9 0 0
Retorts, 1st fusion, hot blast	10 10 0	9 15 0	10 15 0	9 15 0	9 15 0
Do., 2nd do., cold do.	—	—	—	—	—
Tank Plates, ¼ thick and above	11 10 0	11 0 0	11 0 0	11 0 0	11 0 0

WROUGHT-IRON TUBES AND FITTINGS.

(*Subject to* 20 *per cent. discount.*)

Internal Diameter in Inches.	2	1½	1¼	1	¾	½
TUBES.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assorted, 2 to 14 feet, per foot	1 9	1 2	0 11	0 8	0 6	0 4½
Pieces, 12 to 23½ inches, each	3 0	2 0	1 8	1 4	1 0	0 9
Do., 3 to 11½ do.	2 3	1 4	1 1	0 11	0 8	0 6
Longscrews, 12 to 23½ do.	4 0	2 6	2 0	1 6	1 2	0 11
Do., 3 to 11½ do.	3 0	2 0	1 3	1 0	0 10	0 8
Bends and Lamp Bends	4 3	2 3	1 9	1 3	0 11	0 8
Springs, various elevations	3 3	1 8	1 4	0 11	0 9	0 7
FITTINGS.						
Square Elbows, equal or reducing	3 6	2 3	1 9	1 2	0 10	0 8
Round Elbows	3 10	2 6	1 11	1 4	1 0	0 9
Tees, equal or reducing	3 9	2 6	1 2	1 3	1 0	0 9
Crosses, do.	5 3	3 6	3 0	2 3	1 9	1 5
Sockets, reducing	1 3	0 11	0 9	0 7	0 6	0 5
Caps and Plugs	1 3	0 10	0 8	0 6	0 5	0 4
Nipples and Backnuts	1 0	0 8	0 6	0 4	0 3½	0 3
Sockets, plain	1 0	0 7	0 6	0 4	0 3½	0 3
Iron Main-Cocks	18 0	11 0	8 6	6 6	4 6	3 6
Syphon Boxes, 2 quarts	23 0	19 0	18 0	17 0	16 9	—

LONDON METAL MARKET.—*Per Ton.*

	£ s. d.		£ s. d.
Copper, tough cake	92 0 0	Tin, English block	148 0 0
Iron, Welsh bar	12 10 0	Tin-plates, best coke I. C.	2 1 0
Lead, English pig	22 5 0	Spelter, foreign	25 0 0

FREIGHTS.

COASTWISE.—*Per Ton.*

Newcastle—	s. d.	s. d.
Chatham and Rochester	7 0	—7 6
Cork		—
Dover, Folkestone, and Ramsgate		—8 6
Dublin		—
Exeter Quay		—
Ipswich		—
London (from Leith)		—7 6
London (Pool)		—8 0
Lowestoft and Yarmouth		—
Portsmouth and Southampton	10 0	—10 6
Plymouth		—11 0
Shoreham		—
Whitstable		—8 0
Weymouth		—

FOREIGN.—*Per Keel.*

	£ s.	£ s.
Barcelona		—21 0
Bordeaux		—12 0
Boulogne and Calais		— 9 0
Cadiz		—14 0
Cronstadt		—
Copenhagen		—
Genoa		—20 6
Hamburg		— 9 0
Havre de Grace		—10 10
Leghorn		—19 0
Lisbon		—11 0
Rotterdam	10	0—10 10
Stettin		—
Trieste		—20 0
Venice		—23 10

GAS COALS.—*Per Ton.*

Scotch Cannels, f.o.b.—	s. d.	*Scotch Cannels*, f.o.b.—	s. d.
Boghead, at Bo'ness	77 6	Arniston, at Leith	40 0
Capeldrae, at Burntisland	45 0	Billeyford, at Leith	26 0
Cowdenbeath, do.	—	Elphinstone Tower, do.	30 0
Donnibristle, do.	32 0	Grange Cannel, at Bridgeness	—
Kirkness, best, do.	—	Haywood, at Granton	—
Lesmahago (Auchin.), at Granton	46 0	Kinniel, at Bo'ness	35 0
Do. (Duke of Hamilton's), do.—		Lanemark, at Glasgow	—
Main	43 6	Lochore, at Burntisland	45 0
Wee	46 0	Myles' do.	—
Do. (Nitshill Co.'s), do., and at Glasgow	47 6	Pirnie, at Methill	26 6
Lochgelly, at Burntisland	—	Waverley Seam, at Burntisland	—
Milton and Crosshill	35 0	Old Wemyss Cannel, at Wemyss	45 0
Newcastle (*Unscreened*)—		Wemyss Rhumes Cannel	22 6
			Per Ton.
Haswells, Nettlesworth Primrose, and South Pelaw			—
Felling, Framwell Gate, North Pelton, Walker's Primrose, West Wear, and Whitwell Primrose			—
Burnhope, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Pelton Main, Ravensworth, Seaham, South Moor Pelton, South Leverson, Townley Main, West Pelaw, Wearmouth Hutton, and Witton			—
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton			—
Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, South Peareth, Urpeth, Washington, and West Leverson			—
Ramsay's Newcastle Cannel			30 0
Wigan Cannel, f.o.b. at Liverpool			40 0

CHEMICALS.

	£ s. d.		£ s. d.
Ammonia—		Iron Salts—	
Sulphate, white and grey	19 10 0	Green and rusty Copperas	3 0 0
Do., brown, 23 per cent.	18 0 0	Dry do.	2 15 0
Benzole, 30 per cent.	0 3 3	Sulphuric Acid	3 10 0
Carbolic	0 1 4		

SUNDRIES.

	£ s. d.	£ s. d.
Best Newcastle Fire-bricks, per 1000		— 4 0 0
Do., Fire-clay Retorts, per foot run	0 7 0	— 0 7 6
Cliff's Fire-bricks, at Wortley, per 1000		— 3 10 0
Ingham's best Wortley Fire-bricks, on rail or boat, per 1000		— 3 10 0
Farnley Iron Co.'s Fire-bricks, do., do.		— 3 10 0
Wortley Fire-clay Retorts, per foot run	0 5 6	— 0 7 6
Tarred Rope Yarn, per cwt.		—
Fraser's best Fire-bricks, f.o.b. at Inverkeithing		— 2 10 0
Do. Retorts, per foot run	0 5 0	— 0 7 6
Do. Ground Fire-clay, per ton		— 0 10 0
Stourbridge Fire-bricks, per 1000		— 3 0 0
Do. Fire-clay, per ton		— 0 12 0

THE ADULTERATION OF FOOD ACT.—A committee of the Clerkenwell Vestry have agreed to a recommendation that the parish should unite with Holborn and Bloomsbury in the appointment of an analyst for the three districts, at a salary of £100 a year. At their meeting the vestry adopted the committee's report.

DUBLIN WATER SUPPLY.—At the meeting of the Dublin Corporation on the 17th inst., Sir John Gray, M.P., submitted a series of rules and regulations with respect to the fittings and other appliances to be used by all persons supplied with water from the mains and pipes of the corporation, both in the city and in the suburbs. These rules are substantially the same as those approved by the Board of Trade in reference to the water supply of London. In the course of a long and interesting speech, Sir John referred to the great waste of water which had been for years going on in Dublin, and spoke of the means taken to put a stop to the evil. He said in the first week the check was put into operation, the waste was at the rate of 9,000,000 gallons a day. At the end of seven weeks it had fallen to 6,500,000 gallons. Dividing the fourteen weeks during which the check was in force into two periods of seven weeks each, it was found, in contrasting the relative decrease, that the diminution of waste in the last seven weeks represented 1,750,000 gallons per day, and this without any complaint either from the public or the press of the slightest decrease in the natural and sufficient supply of water to any citizen of Dublin. But what did the saving of a million and three-quarter gallons of water mean? The total quantity of water sent last week into the several townships was 1,700,928 gallons. The total quantity saved as above per day was 1,757,000 gallons—in other words, 57,000 more than the whole supply, waste and all, taken by the eight townships which paid for the water they used a sum of £4000 per year. Thus they had saved by the system adopted to stop the water more in value than they were getting altogether from the eight townships for the water supplied to them.

DUKE OF HAMILTON'S

LESMAHAGOW GAS COAL.

LESSEES:

LESMAHAGOW AND LONGLEE COAL COMPANY,

Office—5, DIXON STREET, GLASGOW.

Works—BLACKWOOD & SOUTHFIELD, LESMAHAGOW

English and Foreign Agents:

JAMES MILLER, SON, & CO.,

1, GREAT ST. HELEN'S, LONDON, E.C.,

AND

75, UNION STREET, GLASGOW.

BEALE'S IMPROVED PATENT GAS-EXHAUSTERS,

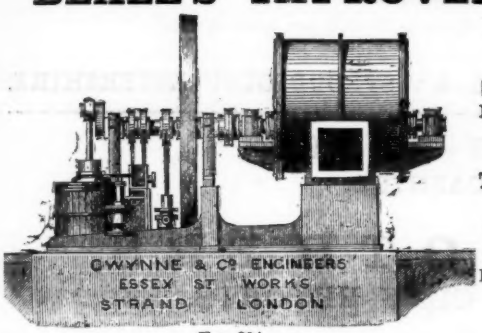


FIG. 224.

WITH

GWYNNE & BEALE'S

PATENT

IMPROVEMENTS,

Made under the personal superintendence of

Mr. BEALE,

The oldest Maker, Inventor and Patentee of GAS-EXHAUSTING MACHINERY.

It is NOT CORRECT to state that Mr. BEALE has RETIRED.

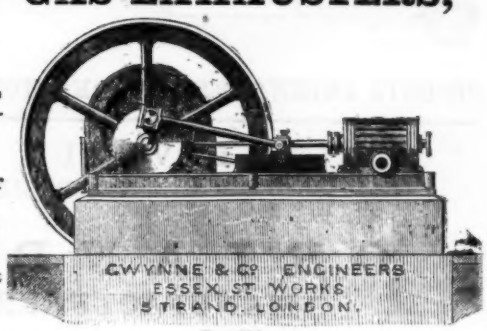


FIG. 225.

Fig. 224 represents one of those erected at the Imperial Gas-Works, Bromley, capable of passing 210,000 cubic feet of gas per hour. These Patent Machines combine the highest quality of workmanship and materials, the largest bearings and wearing surfaces, with the **most perfect system of action yet discovered.** Fig. 225 represents one of a series of four at the Nottingham Gas-Works, each passing 52,500 cubic feet per hour. GWYNNE AND Co. do not pretend to enter into a struggle with other makers in respect to **cheapness.** They have never sought to make **price the chief consideration,** but to produce Machinery of the very highest quality, and the most approved design and arrangement. Their prices have been estimated with a due regard to the **excellence of the article produced,** and when this is taken into consideration, they have no fear for the result.

The orders executed this season for Exhausters and alterations to their patented system, amount to over 3,000,000 cubic feet of gas passed per hour, and to over 200 horse power for Engines to drive them. In every instance their work is giving the greatest satisfaction.

REGULATORS, BYE-PASSES, STOP-VALVES, GAS-VALVES, & MACHINERY FOR GAS MANUFACTURE, OF ALL SIZES,

CAN BE HAD ON APPLICATION TO

GWYNNE & CO., HYDRAULIC & GAS ENGINEERS, ESSEX STREET WORKS, STRAND, LONDON, W.C.

Prices and every information on application.

DUKE OF HAMILTON'S

LESMAHAGOW GAS COAL.

The superior quality of this well-known Cannel, as wrought by

THE NITSHILL AND LESMAHAGOW COAL COMPANY,

Is now generally admitted by all Gas Engineers.

PRICE AND ANALYSIS MAY BE HAD ON APPLICATION TO

JAMES M'KELVIE, HAYMARKET, EDINBURGH.

VICKARYS AND ROBERTSON,

Late JOHN VICKARY,

ESTABLISHED 1840,

GAS ENGINEERS, CONTRACTORS, IRON AND BRASS FOUNDERS,

WEST OF ENGLAND ENGINEERING WORKS, EXETER.

GASHOLDERS AND TANKS,

Retorts, Retort-Fittings, Condensers, Scrubbers, Purifiers, Station-Meters, Governors, Rack and Screw Valves. Gas and Water Mains always in Stock.

STEAM-ENGINES, EXHAUSTERS, SHAFTING AND GEARING, &c.

GAS-FITTINGS,

Including Chandeliers, Pendants, Hall Lamps, Brackets, Star and Sun Lights of all designs.

WET & DRY GAS-METERS,

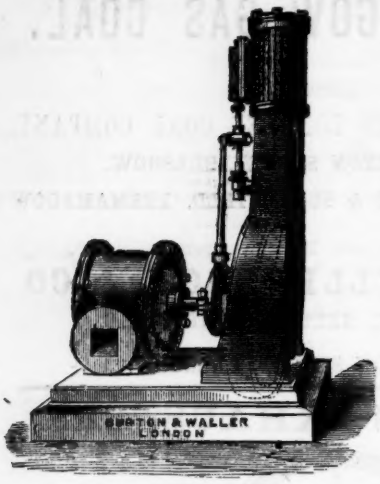
Combining most recent improvements in principle and manufacture; upwards of 200,000 already in work, giving highest satisfaction.
(A guarantee of five years given with every Meter.)

PLUMBERRS WORK, including Lift and Force Pumps; Cocks for Gas and Water and Steam; Brass Fittings.

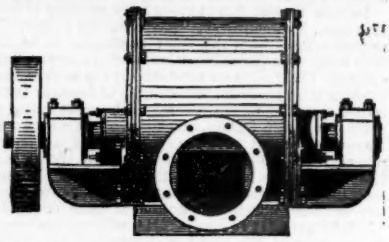
HYDRAULIC AND GENERAL ENGINEERING.

LONDON OFFICE: 8, JOHN STREET, ADELPHI, W.C.

BEALE'S IMPROVED PATENT GAS-EXHAUSTER



WITH
ENGINE COMBINED
ON
ONE base PLATE.
SOLE MAKERS,
GEORGE WALLER & CO.,
Since Mr. BEALE'S retirement, the Oldest Makers.



EXHAUSTERS with HORIZONTAL ENGINE combined.
EXHAUSTERS with OUTSIDE BEARINGS.
MAKERS of ENGINES, BOILERS, and GAS MACHINERY.
TAR, LIQUOR, and SYPHON PUMPS. GAS-VALVES, from 2 to 30 inches.
SELF-ACTING BYE-PASS VALVES, with Lid and Relieving Lever.
ROTARY, TUMBLER, and CAPILLARY WATER DISTRIBUTORS for SCRUBBERS.
EXHAUSTERS from 3000 to 30,000 per hour in stock.

PHŒNIX ENGINEERING WORKS, HOLLAND STREET, S.E., & at STROUD, GLOUCESTERSHIRE.

LIVESEY FIRE-CLAY WORKS,
NEAR BLACKBURN, LANCASHIRE.
(ESTABLISHED 1835.)

ORLANDO BROTHERS,
MANUFACTURER OF PATENT CLAY RETORTS,
AND EVERY DESCRIPTION OF
TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.
FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

Established

1795.

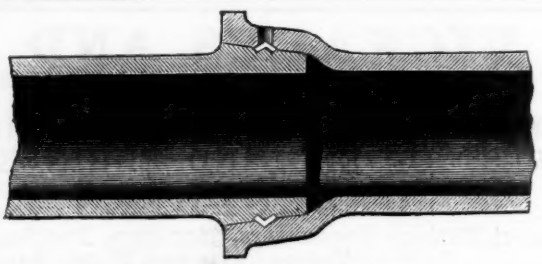
JOSEPH CLIFF & SON,
THE ORIGINAL
WORTLEY FIRE-BRICK WORKS,
NEAR LEEDS,
MANUFACTURERS OF ALL DESCRIPTIONS OF
FIRE GOODS, and Salt-Glazed Drain-Pipes.
LONDON WHARF:
Wharf No. 4, inside Great Northern Goods Station, King's Cross, N.;
LIVERPOOL—1, Back Leeds Street,
Where is always kept a Stock of Retorts, Fire-Bricks, Terra Cotta Ware, and Drain-Pipes.

FOR SALE, a Station-Meter, in square case, by Parkinson and Co., to pass 20,000 cubic feet per hour. Also one to pass 14,000 cubic feet per hour, with square front.
Apply to Mr. CHARLES HUNT, Engineer, Birmingham Gaslight Company, Windsor Street, BIRMINGHAM.

CORPORATION GAS-WORKS, DARLINGTON.

TO ENGINEERS, IRONFOUNDERS, &c.

THE Gas Committee of the Darlington Corporation invite TENDERS for the supply and erection (not later than July 1 next) of the following:—
Contract No. 1.—Erection of New Purifying and Lime Sheds, Engine and Boiler House, Foundations for Plant, &c.
Contract No. 2.—For the supply and erection of a wrought-iron Annular Condenser.
Contract No. 3.—For the supply and erection of an Engine and Exhauster, to pass 40,000 cubic feet of gas per hour, also one Cornish Boiler.
Contract No. 4.—For the supply and erection of a wrought-iron Hydraulic Main, and Ironwork required for a Stack of 24 Retorts.
Contract No. 5.—To supply a Steam Pump, also a Portable Boiler.
Contract No. 6.—For the supply of Fire-Bricks, Tiles, &c., for 24 Brick Retorts.
Specifications can be seen, and further particulars obtained, on applying to the Engineer of the Works, to whom all tenders must be sent, on or before the 26th of February, 1873.
The Committee do not bind themselves to accept the lowest or any tender.—By order,
WM. B. EMMERSON, Engineer, &c.



SOMERVILLE'S
PATENT JOINTS FOR GAS & WATER PIPES

Require no "yarning," no "setting up," nor increased excavation for joint-holes, while less lead and less labour suffice for the making of joints, which have been proved to withstand 95 lbs. on the square inch, have stood the test of more than two years practical use, and must, from the principle of their construction, remain sound.
For Licences to Manufacture, apply to
Mr. W. H. BENNETT,
42, PARLIAMENT STREET, WESTMINSTER, S.W.

WANTED, a competent Man or working plans to erect PLANT for the Distillation of Gas Liquor upon Coffey's principle.
Address Z 112, *Chemical News* Office, Boy Court, Ludgate Hill, LONDON, E.C.

WANTED, by the Advertiser, who has had many years experience in the distribution of gas and water with the largest metropolitan companies, a SITUATION where a thorough practical knowledge of main and service laying is required. Fifteen years testimonial from last situation.
Address PHILO, 26, HOLLOWAY ROAD, N.

WANTED, by a practical Man of 14 years experience, a situation as MANAGER of a provincial Gas-Work. Thoroughly conversant with the manufacture and distribution of gas, working and setting clay and iron retorts, main and service laying, and general gas-fitting. Consumption from 5 to 10 million feet per annum. First-class references can be given.
Address W. D., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO GAS COMPANIES.

WANTED, by the Advertiser, a situation as GAS MANAGER where the make of gas is about 10 million cubic feet per annum, or as ASSISTANT MANAGER in large Gas-Works. Well acquainted with manufacture and distribution of gas, fitting department, main laying, retort setting, &c., and keeping accounts. Can speak French and Italian. No objection to go abroad. Good references.
Address M. P., 3, Great Ormond Street, Queen Square, LONDON, W.C.

TO GAS COMPANIES AND ENGINEERS.

WANTED, by the Advertiser, an appointment as Manager, or as Manager and Secretary. Has had 18 years practical experience in the management of Gas-Works (home and foreign). Is thoroughly conversant with the most modern appliances introduced for its economical production, purification, and distribution. Would have no objection to go rbroad. Satisfactory testimonials and references. Aged 35 years.
Address X. Y., care of Mr. R. Batley, 13A, Great George Street, WESTMINSTER, S.W.

SUPERINTENDENT OR FOREMAN.

WANTED, in a large Gas-Work abroad, under English management, an experienced and steady practical man to take charge of the Gas-Works as SUPERINTENDENT or FOREMAN. He must thoroughly understand the manufacture of gas on the most modern system, the working and setting of clay retorts, and be practically acquainted with the entire machinery of an extensive Gas-Work.
Applicants to state their age, whether married or single, and give full details and particulars as to present and past engagements. Testimonials need not at present be forwarded.
Address, in first instance, to F. LESLIE, Esq., Moscow, RUSSIA.

TO GAS-METER MANUFACTURERS.

THE Advertiser, having just left a firm of gas-meter makers, for whom he has travelled for the last 15 years, and has a good connexion amongst Gas Companies, &c., is open to an ARRANGEMENT in the same trade. Part travelling expenses and a commission.
Address A. B., Post-Office, HAMPSTEAD ROAD, N.W.

TO GAS AND WATER COMPANIES, MANUFACTURERS, &c.

THE Advertiser, a middle-aged Man (an Army pensioner), who can be well recommended for steadiness, sobriety, and integrity, desires to obtain employment as Watchman, Messenger, or Light Porter, and to make himself generally useful.
Address T. K., 90, Carlton Street, Kentish Town, LONDON.

THE Advertiser, at present holding the situation of Manager of a small Gas-Work in the provinces, having had nine years experience in designing, erecting, and managing Gas-Works, wishes to get the MANAGEMENT of a Work where the make is about 50 million per annum, or ASSISTANT in a larger one, where there is a probability of promotion. Speaks Spanish.
Address J. D. M., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

"DON" ECONOMIC LUBRICATING OIL is about 40 per cent. cheaper than the kinds heretofore used by Gas Companies, many of whom have adopted it. The Alliance Gas Company say, "Your 'Don' Oil gives us every satisfaction." Trial casks sent on approbation.—DUNCAN BROTHERS, 2, Blomfield St., LONDON, E.C.

COST PRICE SHEETS.

MANUFACTURE AND DISTRIBUTION OF GAS. These sheets are the same as were laid before the Dublin Meeting of the British Association of Gas Managers; but in the REPRINT, NOTES have been added for the guidance of those using them. Copies of the two sheets may now be had, price 5s.
South Shields, January, 1873. W. J. WARNER.

COOKING AND HEATING BY GAS,
BY
MAGNUS OHREN, A.I.C.E.

NEW AND REVISED EDITION.
Prepared for Gas Companies to circulate amongst their gas consumers.
£1 per 100; £3 15s. per 500; or £6 per 1000.
Address, MAGNUS OHREN, Gas-Works, Lower Sydenham, London, S.E.

GAS Engineers Traveller Wanted, by a firm, in the south of England, manufacturing Gas-Works Plant, including meters, chandeliers, and fittings.
Also a JUNIOR DRAUGHTSMAN. One with some experience in Gas and Water-Works Apparatus preferred.
Apply, stating experience, terms, &c., to G. I. T., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, by a young Man, a situation as Meter Fixer, Fitter, Index Taker, &c.
Address Mr. ENGLAND, 13, Great Mitchell Street, ST. LUKE'S, E.C.

EXHAUSTER.

WANTED, a good second-hand Beale's EXHAUSTER, to pass about 5000 feet per hour.
Address, stating full particulars and price, to ALPHA, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

STATION-METER.

WANTED, by the Hyde Gas Company, a good second-hand STATION-METER, to pass 30,000 cubic feet per hour, with 12-in. inlet and outlet, bye-pass, and valves complete.
Address, stating price and particulars, to Mr. WM. SMITH, Jun., Manager, Gas-Works, Mill Wood, Hyde, near MANCHESTER.

FOR SALE—Two Lids for 8-ft. Purifiers, one Cockey's 10-in. VALVE for four Purifiers, and three 10-in. VALVES. All in good condition.
Apply to J. HEPWORTH, Gas-Works, CARLISLE.

FOR SALE—A set of four second-hand PURIFIERS, 5 ft. square by 2 ft. 6 in. deep, with 6-in. connexions.
Apply to Mr. BOULTON, Secretary, Horncastle Gas Company, HORNCASTLE.

FOR SALE—Two small Purifiers, 8 ft. by 6 ft. by 3 ft. 6 in., with three tiers of sieves, lifting apparatus, and connexions complete.
For further particulars and price, apply to W. H. BECK, 139, CANNON STREET, E.C.

FOR SALE, in good condition, a Purifier, 9 ft. by 4 ft. by 3 ft. 4 in., having a division-plate in the middle, adapted for four sets of grids, with wrought-iron cover.
HYDRAULIC VALVE, with 5-inch connexions, adapted for two purifiers, with screw hoist for lifting purifier lids.
Apply to the MANAGER, Gas-Works, PRESCOT.

SIDMOUTH GAS-WORKS, DEVONSHIRE.

TO BE SOLD, by Auction, without reserve, at the Half Moon Hotel, Exeter, on FRIDAY, the 4th day of April next, at Two for Three o'clock precisely, subject to such conditions as will be then produced (unless previously disposed of by private contract) the SIDMOUTH GAS-WORKS, now in the occupation of Mr. Henry Ellis, comprising the Land, Gas-house, Cottage, Buildings, and Premises, in or upon which the same are carried on together with Bed constructed for 12 Retorts, Gasholders, Tanks, and Purifiers, &c., belonging thereto.
There are two Gasholders, one recently built with iron tank, capable of holding 9000 cubic feet of gas, and the other capable of holding nearly the same quantity. There are also several miles of Mains of different sizes, which, with about 80 Public Lamps belonging to the Vendors, will be included in the purchase.
The Purchaser will be required to take off at a valuation all the stock of coals, coke, &c., on the premises, and also all meters, tools, implements, and tenant's fixtures.
A railway from the Ottery Road Station, of the London and South-Western Railway to Sidmouth is in course of construction, and there can be no doubt that on its completion the present consumption of gas will be greatly increased.
Possession will be given on completion of the purchase. The land on which the above works and buildings are erected is held for the residue term of 2000 years.
Further particulars may be obtained of Mr. HENRY ELLIS, at the works; Mr. EDWARD MILLINGTON, Land Agent and Surveyor, Holbeach; or Messrs. RADFORD AND WILLIAMS, Solicitors, Sidmouth.
Sidmouth, Jan. 25, 1873.

TO GASHOLDER MAKERS AND OTHERS.

THE Chorley Commissioners are prepared to receive TENDERS for the supply, erection, and completion of a TELESCOPIC GASHOLDER, 100 ft. in diameter and 25 ft. deep. Drawings and specification may be seen on application to Mr. Hamer, Superintendent, Gas Office, 58, Water Street, Chorley, on or after the 24th day of February inst. The tank is now completed.
Sealed tenders, addressed to me, to be sent or before the 15th day of March next.
The Commissioners will not be bound to accept the lowest or any tender.—By order,
RICHARD JACKSON, Solicitor,
Clerk to the Chorley Commissioners.
Chorley, Feb. 22, 1873.

CARDIFF GASLIGHT AND COKE COMPANY.

TO IRONFOUNDERS AND OTHERS.

THE Directors of this Company are prepared to receive TENDERS for TWO PURIFIERS, 28 ft. long, 14 ft. wide, and 5 ft. deep; to be arranged for three tiers of shelves, and fitted with best hard wood sieves; to be fixed complete, with apparatus for raising covers, to consist of two girders and travelling crane.
Specification and any further particulars upon application at the Company's Offices, Cardiff.
Tenders to be addressed to the Chairman of the Directors, and endorsed, "Tender for Purifiers," to be sent to the undersigned on or before the 11th day of March next.
The lowest or any tender not necessarily accepted.
HENRY BOWEN, Engineer.
Gas Offices, Cardiff, Feb. 20, 1873.

THE PATENT
CATOPTRIC LAMP,
for Streets and all Situations where the Light ascending above the level of the Lamp is wasted,
Is now in use in Moorgate Street, London, and has been in successful operation upon Waterloo Bridge, since Oct. 7, 1871.
T. A. SKELTON, 37, Essex St., Strand, LONDON,
INVENTOR AND PATENTEE.

IMPERIAL GASLIGHT AND COKE COMPANY.
NOTICE is hereby given that the ORDINARY HALF-YEARLY GENERAL MEETING of the PROPRIETORS of this Company will be held at No. 33, John Street, Bedford Row, London, on THURSDAY, the 27th day of February inst., at One o'clock precisely; and NOTICE is also hereby given that, in addition to the ordinary business to be transacted at such Meeting, a resolution will be submitted authorizing the Directors to borrow, on mortgage or bond, under the powers conferred by "The Imperial Gas Act," 1869, an amount not exceeding £81,250; and further NOTICE is also hereby given that a Special General Meeting of the Proprietors will be held at the same address immediately after the above Meeting, for the purpose of considering and, if so determined, of approving the following Bill, for which application is intended to be made to Parliament in the present session; that is to say, "A Bill to authorize an amalgamation between the Imperial Gaslight and Coke Company and all or any of the other Metropolitan Gas Companies."
By order,
HARRY CHUBB, Secretary.
Offices of the Company, Nos. 33 and 34, John Street, Bedford Row, London, Feb. 7, 1873.

WEST of England Fireclay, Bitumen, and CHYMICAL COMPANY, LIMITED.
SECOND HALF-YEARLY DIVIDEND, at the rate of 10 per cent. per annum.—NOTICE is hereby given that the above-mentioned Dividend will be payable at the Offices of Messrs. Emmens Brothers and Co., 8, Old Jewry, London, E.C., on and after MONDAY, the 24th day of February inst., between the hours of Twelve and Four (who are also authorized to receive applications for shares).
By order of the Board,
GEORGE EMMENS, Secretary.

COAL at 25s. per Ton.—The Directors of the West of England Fireclay, Bitumen, and Chymical Company, Limited, are prepared to consider APPLICATIONS for KIMMERIDGE COAL at the above rate, delivered in London; or at 15s. f.o.b. at the Mines on the coast of Dorsetshire.
Full particulars may be obtained at the Offices of the Company, 8, Old Jewry, London, E.C.
GEORGE EMMENS, Secretary.

THE BIRMINGHAM AND STAFFORDSHIRE GAS-LIGHT COMPANY.

THE Birmingham and Staffordshire Gaslight Company invite TENDERS, for a term of years, for their make of TAR, from the 1st day of January, 1874, for the whole make, or separately for the respective works at West Bromwich, Adderley Street, and Saltley.
Tenders to be sent in on or before the 1st day of April next.
The Directors do not bind themselves to accept the highest or any tender.—By order of the Board,
SAMUEL WALSH, Secretary.
Old Square, Birmingham, Jan 14, 1873.

G. MACKANESS,
GAS ENGINEER AND MANUFACTURER OF SULPHATE OF AMMONIA,
36, Edward St., Hampstead Road, London, N.W.,
Respectfully invites the attention of Gas Companies to the great importance of their Distilling their Ammoniacal Liquor. It need hardly be said the price of Sulphate of Ammonia is such as must be a good source of revenue.
The Advertiser will undertake to put up the necessary Apparatus upon the best principles, and guarantee to leave them in good working order.
N.B.—*All communications will have prompt attention.*

BOX'S PATENT FASTENING.

This fastening for retort-lids is proved by experience to be the most simple, effective, and durable of any that have ever been used.
The amount of luting is reduced more than one-half.
The lid is rapidly secured and gas saved.
For prices, references, and particulars, apply to THE SOLE MAKERS, G. WALLER AND CO., HOLLAND STREET, LONDON, S.E., and at STROUD, GLOUCESTERSHIRE.

GAS AND WATER PIPES.

WILLIAM MACLEOD & CO.,
METAL MERCHANTS AND CONTRACTORS,
18 & 20, ALSTON STREET, GLASGOW.

CAST-IRON GAS AND WATER PIPES AND FURNISHINGS.
MALLEABLE IRON TUBE FOR GAS, WATER, AND STEAM.
AGENTS FOR THOMAS GLOVER & CO.'S
PATENT DRY GAS-METERS
DELIVERY F.O.B. ON CLYDE.
Lists on application.

BAILEY'S Patented Inventions are now in extensive use wherever steam is known. Bailey's Patent Steam Gauges, Pyrometers, Water Gauge Cocks, Test Pumps, Fusible Plugs, Steam and Water Valves, Safety Valves, Junction Valves, Pumps, Tell-Tales, Recorders, Lightning Conductors, Electric Telegraphs, Turret Clocks, Steam Joint Cement, Lifting Jacks, Boiler Feeders, Lime Catcher and Separator, Injectors and Ejectors, and every description of first-class Brass Work for Engines and Boilers. Gas-Works Managers who have not our large book should send for it.

16th edition, 1000 engravings, 4to., post free 2s. in stamps, weight 10 oz., cost of production £1000,

BAILEY'S Illustrated Inventions, containing details and prices of goods in our five several departments:—(1) Brass Foundry, Steam Gauges, Indicators, Feeders, and Fittings; (2) Engineers Sundries, Small Tools, and Stores; (3) Machine Pump and Fire Engine; (4) Turret Clock, &c.; (5) Electric Telegraph, A B C Instruments, Bells, and Apparatus.

J. BAILEY and Co., Albion Works, Salford, LANCASHIRE.

IMPORTANT & EXTENSIVE BUSINESS PREMISES IN NOTTINGHAM.

MESSRS. POTT and NEALE are instructed by the Directors of the Nottingham Water-Works Company to SELL by AUCTION, at the George Hotel, Nottingham, on THURSDAY, the 27th day of February, 1873, at Four for Five o'clock precisely, all that very valuable FREEHOLD ESTATE and PROPERTY, in the Town of Nottingham, belonging to the Nottingham Water-Works Company, and consisting of and comprising their Trent Water-Works Station (near to the Nottingham Trent Bridge), with the Residence, Engine-House, and other Buildings thereon. And also the Gardens, Crofts, and several Closes and Pieces of most valuable Land around and adjoining, containing in the whole an area of 23a. 1r. 33p. or thereabouts, with the minerals under the same. A 40-horse Rotative Condensing Steam-Engine, with 3 Boilers, and other Machinery and Apparatus attached thereto, will be included in the sale, but the Pump Vacuum Vessel, Air Vessel, and the main-pipes and appliances connected thereto, and now used by the vendors, for the purposes of their Water-Works, shall continue to belong to the vendors, who will remove the same, doing as little damage as may be to the buildings and premises by such removal.

The above property has an extensive frontage to the river Trent, and access to the main entrances from the south into Nottingham by a road and street called respectively the Flood Road and Arkwright Street, and is at a short distance from the Midland and Great Northern Railway Stations. It is well adapted by reason of its locality for a passenger or goods station, or for a carriage, locomotive, or engine manufactory, iron, cotton, bleach, or dye works, for factory purposes, or for colliery works in connexion with the large Nottinghamshire coal-field which has been recently discovered and proved, and is now successfully wrought at the Clifton Colliery, situated within three-quarters of a mile or thereabouts from this estate, or for general trade and building purposes.

The Trent is a river navigable from near the Trent Bridge for boats of 40 tons burden, to Newark, Gainsborough, Grimsby, and Hull, and it gives access, by means of the Nottingham and Grantham Canals, which are situated, the former almost adjoining, and the latter within a few hundred yards of the property, and numerous other connected canals, including the Trent and Mersey Navigation and Grand Junction Canal to London, Birmingham, Manchester, Liverpool, and nearly all parts of the kingdom.

The railway communications between Nottingham and all the large towns of the kingdom, with the coal and iron districts, and with all the large ports, are also very complete, and Nottingham and its neighbourhood have a rapidly increasing population of 150,000 people or more.

Valuable beds of cannel, steam, and household coals are found in the adjacent colliery, and no doubt exist at a workable depth beneath this property.

Possession can be given at or about Midsummer next.

Printed particulars and plans and conditions of sale can be obtained on application to Thomas Hawksley, Esq., 30, Great George Street, Westminster, the Engineer of the Company; to Robert Jalland, Esq., Surveyor, Fletcher Gate, Nottingham; to the Auctioneers, Wheeler Gate, Nottingham, and 20, Cockspur Street, London; or to the undersigned,

WALTER BROWNE, Solicitor.

St. Peter's Gate, Nottingham, Jan., 1873.

CLOTH GAS-BAGS FOR MAINS,

As supplied to the Imperial, Chartered, and other London and Provincial Gas Companies. Bellows and Valves for inflating Well Dresses, Stokers Gloves, India-Rubber Suction and Delivery Hose, Gas-Tubing, Leather, India-Rubber and Gutta-Percha Machine-Bands, Sheet and Washers for Steam Joints.

T. BUGDEN, Manufacturer,
79, GOSWELL ROAD, LONDON, E.C.

TORBANEHILL MINERAL.

For Sale, by Tender,

FOR WHOLE OR PART,
SEVERAL THOUSAND TONS OF THE

Celebrated Torbanehill Mineral,

Saved from the fire at Torbanehill in June last.

The mineral as it at present lies has been examined and analyzed by Dr. WILLIAM WALLACE, Analytical Chemist, Glasgow, who says:

"Very great care was employed to obtain reliable average samples, and the results show that the mineral is not appreciably damaged."

The results of two testings of fair samples of the Coal give 14,680 cubic feet of 43·7 candle gas.

APPLY TO

MR. DAVID STEWART,
128, INGRAM STREET, GLASGOW.

GEORGE ORME & CO.,

GAS-METER MANUFACTURERS, BRASSFOUNDERS & FINISHERS,

ATLAS METER-WORKS, OLDHAM.

CONSUMERS GAS-METERS ON THE MOST APPROVED PRINCIPLES.

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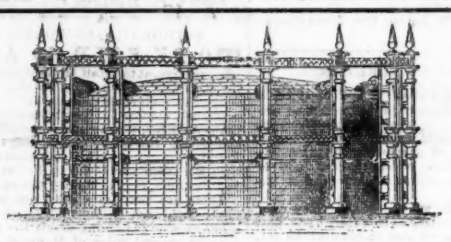

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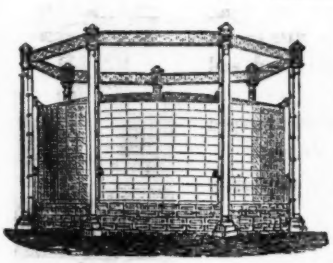

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J. SUGG and CO., late ALBERT KELLER, GHENT.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.

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CATHELS & TERRACE'S Patent Four-WAY DISC GAS-VALVE is the simplest and best Valve for Purifiers, and as a By-pass for other apparatus in Gas-Works. It is always gas-tight, and has no springs, ground faces, or other delicate parts. By its use the flow of the gas cannot be accidentally stopped, and it never sticks.

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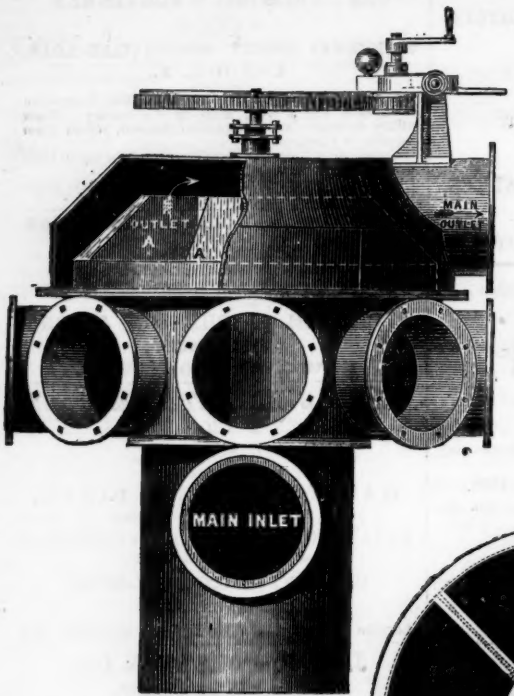
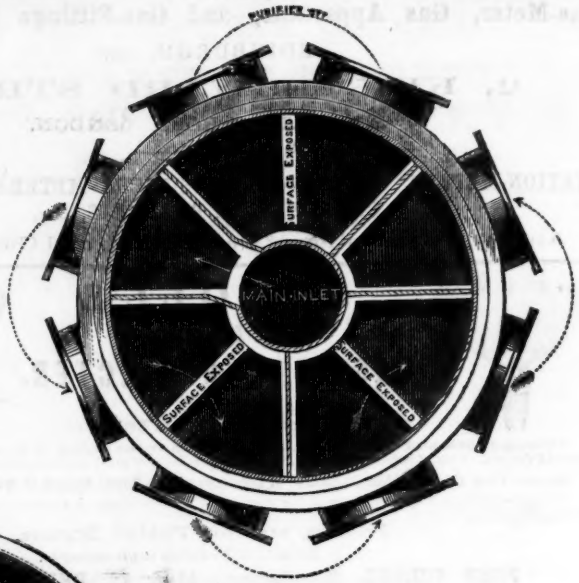
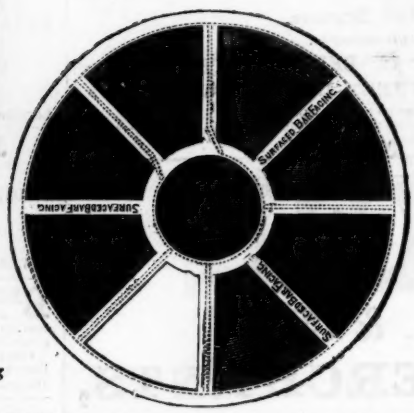
C. & W. WALKERS' PATENT CENTRE-VALVES.



Elevation of the Centre-Valve for four Purifiers. The safety cover is shown broken, to enable the Valve itself, which is inside, to be seen.



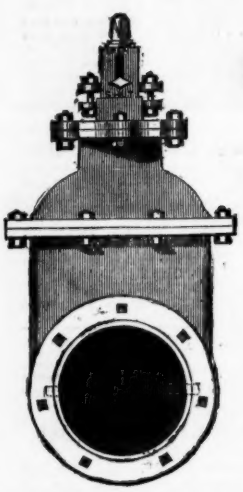
Plan of the Body, showing the Valve lying in it, with three of the facings, which were formerly exposed to settlements of dirt, carbon, naphthaline, &c., but which are now always covered by the surfaced bar-facings of the Valve. (See below.)



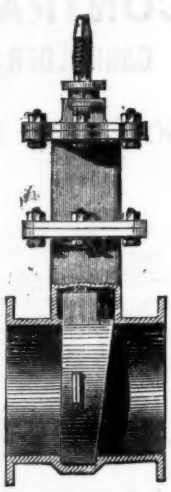
Plan of the Valve, or upper portion, showing the surfaced bar-facings referred to above.

These PATENT CENTRE-VALVES are the most perfect and certain means for working Purifiers. The Valve itself is protected from all injury inside the safety cover. The working of the Valve is so easy, and so governed by the stop-catch movement, that the Purifiers can be instantaneously changed in the dark as well as in daylight. They are scraped perfectly true, metal to metal, the facings heretofore exposed are always covered, and there is nothing more reliable, certain, and durable in a gas-works. By their use the floor of the Purifying-house is clear and level; the Valve and all connexions being beneath the floor, out of the way of working. A very considerable improvement and saving is effected in the cost of the connecting-pipes.

FOUR-WAY CENTRE-VALVES FORMING INLET, OUTLET, AND BYE-PASS.



C. & W. WALKERS'
DOUBLE-FACED GAS-VALVES.



These solidly constructed double-faced Gas-Valves are superseding the old system of the light, single-faced disc, which is too uncertain and unreliable in large bores.

They are guaranteed absolutely gas-tight. They are very massive and rigid, and by improved modes of manufacture they are produced at very little excess in cost over the old light, weak system, which is liable to spring and bend, and become leaky.

The Valve is a rigid wedge of solid cast iron, having two perfectly scraped surfaced facings fitting between the two on the body, which are also surfaced.

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At a slight additional expense both flanges are faced to bolt to main-pipes.

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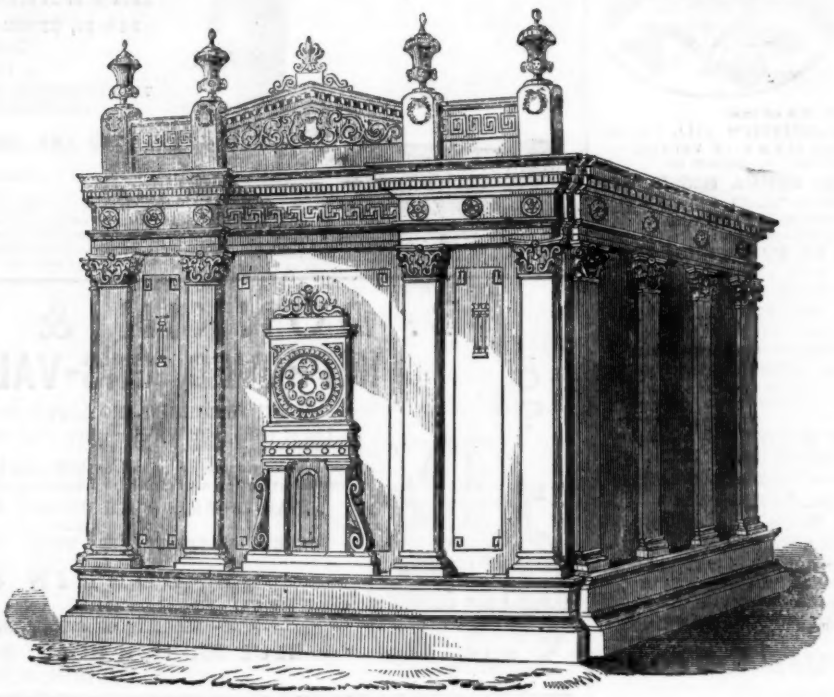

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CARBONACEOUS INCRUSTATION FROM GAS-RETORTS.

"21, *Parliament Street, Westminster, S.W., Nov. 5*, 1870.

"Dear Sir,—I had occasion to visit a country gas-work, which at the present time is being remodelled under my direction, and found the only available Retorts in such a state as the word 'desperate' only feebly describes, carbon having been deposited in many of them to the extent of about 5 ft. in length, in solid blocks of 15 in. diameter. The works under these circumstances being only able to produce about half the gas required for the town. I need not explain how such a state of things had come to pass; it is enough to say I had to deal with it. I applied Edge's patent process, which I have to thank you for bringing under my notice a few months since, and you will be glad to hear that perfect and complete success resulted from its application.

"I believe I am acquainted with all the known methods of dealing with this question of the removal of carbon from the interior of Retorts, but I am quite satisfied that no other than this would have enabled me to save the town in question from darkness. I feel that it is due to you and the patentee to call the attention of gas managers to the invention, which I regard as a boon beyond all praise.

"The Clay Retorts upon which I operated were nearly worn out, and, but for this method of dealing with them, would have been rendered totally useless, whereas they are now doing good service, and working off full charges at good heats.—I am, dear sir, yours faithfully,

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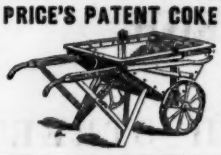

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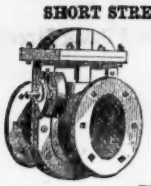

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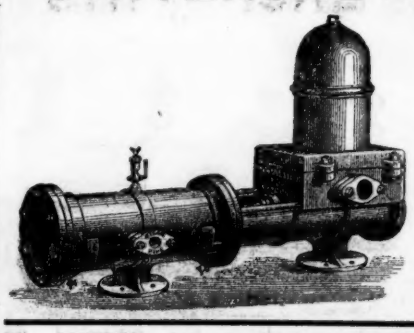

Ardwick Bridge Chemical Works, Manchester, Oct. 28, 1872.

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(Signed) PETER HART, *Manager.*

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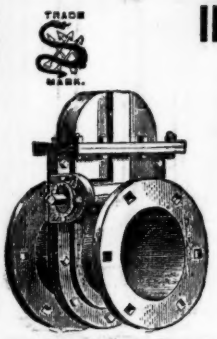

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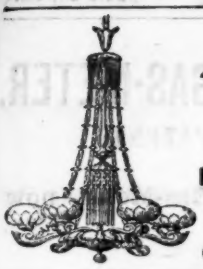

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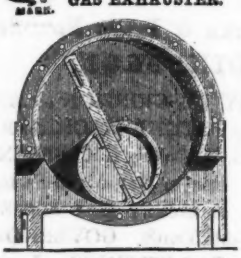

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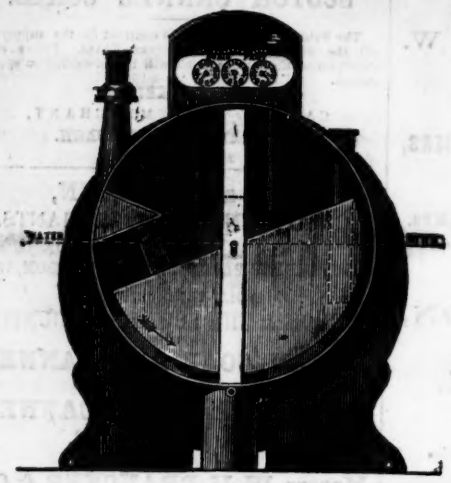

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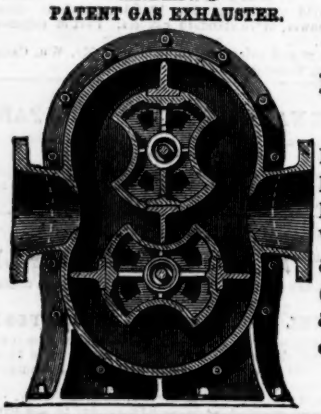

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